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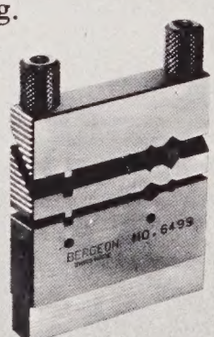


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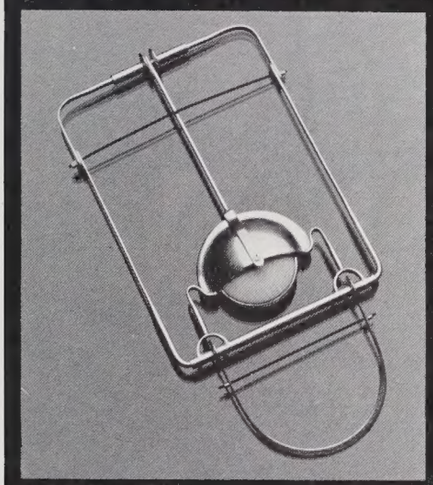

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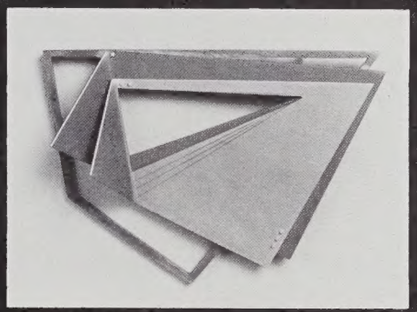

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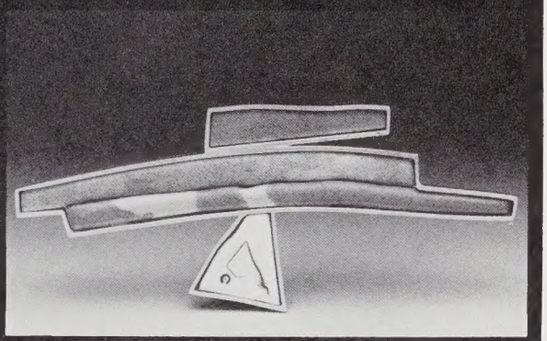

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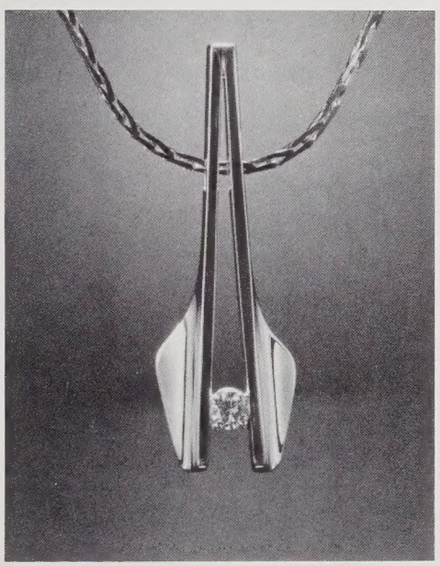

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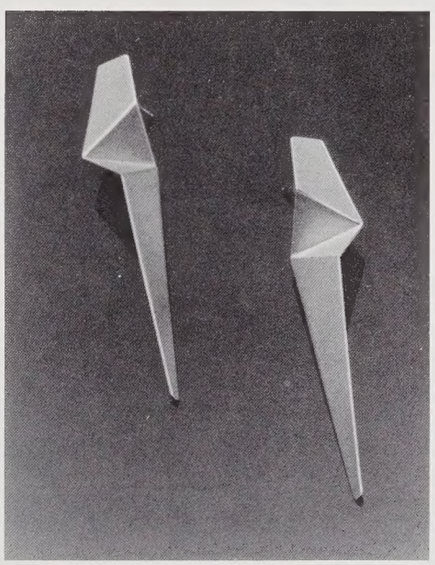

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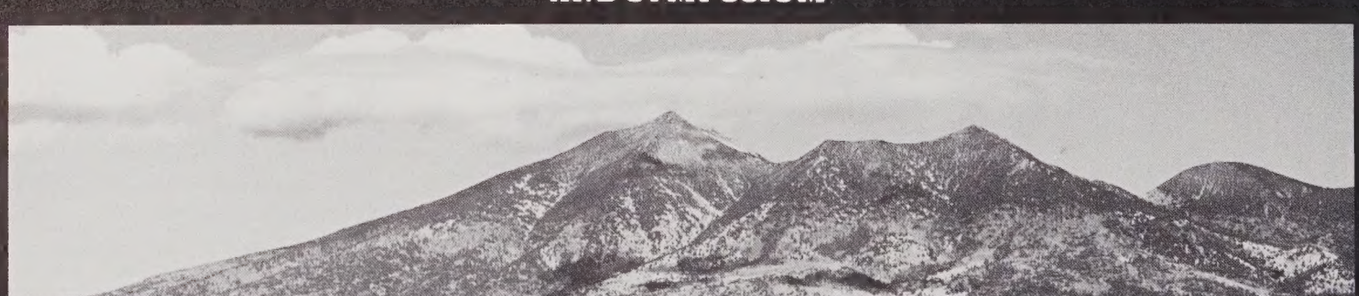

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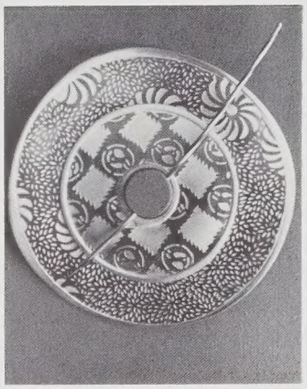

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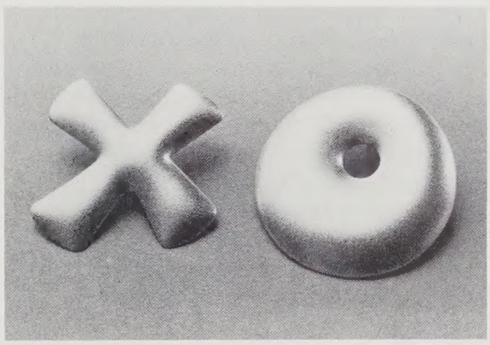

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# LETTERS TO THE EDITOR

Dear Editor:
Mon Dieu! Can this *really* be *Metalsmith?* Two back-to-back critiques with wholly disparate stylistic and intellectual approaches and yet both addressing themselves seriously to immediate concerns, attitudes and issues of contemporary jewellery? Indeed, opening up the hitherto narrow (some say nonexistent) jewellery discourse? Well . . . while congratulations are in order, perhaps thank you is more to the point. So, thank you for printing the Linda Norden and C.E. Licka pieces about "Jewelry USA" and "Jewellery International", respectively, because to this jeweller's eyes (and mind) they are two of the most rigorous, well-observed, intellectual and provocative articles to appear in *Metalsmith* since vol. 1 no. 1. The necessity for such criticism is, I hope, evident to all contemporary jewellers. For if *Metalsmith* abdicates its responsibility to inform the readership of the presently evolving critical jewellery dialogue, then the magazine remains little more than an annotated promotional and technical picture book. My colleagues here in Toronto, and several whom I have just visited in Europe, feel strongly that with this issue *Metalsmith* has matured.
—James Evans

Dear Editor:
I would like to acknowledge that a dialogue among the jurors of "Jewelry USA," moderated by Arline Fisch, was conducted after their final selection of pieces for the exhibition. In lieu of conducting interviews with the respective jurors, and for lack of any comprehensive catalog essay by them, I made use of the unpublished transcript of this dialogue while writing my article/review on the exhibition (Fall/1984). While a postscript about this unpublished document would have been appropriate, I cannot apologize for failing to request the reprinting, in toto, of the actual transcripts. It is my strong belief that a magazine such as *Metalsmith* profits far more from the publication of critical commentary on the work of American jewelers than from the verbatim transcription of proceedings. If the jurors had wanted to communicate their thoughts on the state of American jewelry or on their criteria for selecting objects for "Jewelry USA" *in words,* they had ample opportunity to do so in the form of a catalog essay—I, for one, would have been grateful to read such an essay. (As both C.E. Licka and I observed in our respective comments, Helen Drutt's contribution to the "Jewelry International" catalog was much appreciated.)
—Linda Norden

Dear Editor:
In my article on reticulation and heat coloration of shakudo and shibuichi (Fall/84), the bracketing may be misleading on the chart on page 40. The area of reticulation, as mentioned in the text, is actually very small, occurring in the small triangular space between the homogeneous liquid and the solid state. The reticulation area is the smallest in gold and copper and a bit larger in silver. Also, the third entry on the upper chart should read "1 solid state", rather than "1 liquid state."
—Diane Egbert

Dear Editor:
It was extremely disappointing to read the article by Ettagale Blauer concerning the judging of the 1984 platinum jewelry design competition (Fall/1984). Nine of the 10 finalists were pictured, but for some reason the piece by Joe Apodaca was neither shown nor discussed.
If the author did not like the work, then she should say so and give the reasons which support the opinion. To omit any comment or a picture on only one entry is cowardly and it casts considerable doubt on the validity of the judging process. Someone owes Mr. Apodaca an apology.
—Kenneth Callen

*The editors sincerely regret the inadvertent omission of Joe Apodaca's brooch from the article on the 1984 JM/SNAG Platinum Jewelry Design Competition. The author, Ettagale Blauer, was in no way responsible for this omission. The brooch is shown below.*

# EDITORIAL

The spring and summer fashion collections have recently taken over the style pages of local and national newspapers. An odd phenomenon is occurring this year. Accessories are overwhelming the clothes. One reporter commented that headdresses, jewelry and footgear seemed more inventive than the fashions they accompanied.

This year, for example, Karl Lagerfeld, known in the past for his plumber's tools jewelry and dressmaker's pincushions and scissors jewelry, created towering headgear to simulate French pastry-cream puffs. Plastic bracelets the size of bicycle wheels encircled models' arms, as birds with elaborate plumage perched on their shoulders.

While art jewelers may be skeptical of the runway scene, fashion trends are worth notice. One question raised is, why is there now so much attention paid to accessories? Do these accessories accent the body or use it as an armature for outrageous gesture? Are they merely meant to catch attention, or do they go farther in making a statement about the body and body adornment?

A contemporary Japanese painter Tadanori Yokoo has said, "Increasingly fashion and art are getting closer. Often wearing clothes means wearing an artwork, wearing the imagination of a designer. . . . Soon fashion will be something to experience like reading books and seeing art are now."

In this magazine and in exhibitions art jewelry is usually presented as an object separate from the body. *Metalsmith* is interested in exploring and documenting the jewelry and accessories people are wearing. Therefore, we welcome submissions of black-and-white photos of statements in body adornment from readers. Send photos to us at:
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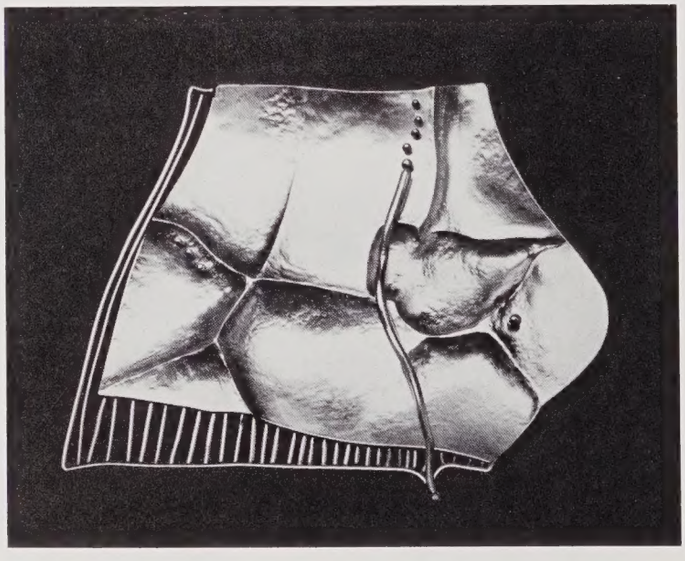
—SB



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# David Paul Bacharach

## WEAVING IN METAL *by Deborah Norton*

David Paul Bacharach is a part of the growing contingent of American metalsmiths who are challenging the Modernist tradition of vesselmaking (see "American Holloware, Changing Criteria" by Jamie Bennett, *Metalsmith*, summer 1984). He has managed to avoid the principles of functionalism and significant form which have dominated post-World War II holloware by turning to another craft form, basketry, for inspiration. Fortunately he has gone beyond the gimmickry of merely recreating a vessel that is traditionally, and more successfully, made in another medium. Instead he has used basketry's forms and weaving techniques as a background for virtuoso metalwork.

Although Bacharach has been working in metal for 20 years, it was his refusal to isolate himself within the metalsmithing world which eventually led him to create his woven vessels. As he explains, "I have always spent a great deal of time studying contemporary American crafts and wondering how to incorporate the colors, textures and forms I was seeing in these crafts into my metalwork. Also a student of American Indian baskets and clay, Japanese bamboo baskets and bronzes, and pre-Columbian metal, I have attempted to mesh the forms and images from these ancient sources with those from modern American crafts to yield the body of work I'm now involved with."

Bacharach was attracted to the weaving process primarily because of its spontaneity, a trait that is essential to his method of working. "When I begin a new piece, I do not have a definite idea of what that particular object is going to do. As I progress I determine how each new section will be integrated structurally and visually into the whole," he says. "My initial woven form is held together only by copper tie-wires and is, therefore, fairly unstable. This inherent instability allows me to easily push, stretch and cut the piece into a shape I'm comfortable with. At this point I take the piece to its first 'finished' state, including brazing all seams, patination and adding gold leaf. After living with the vessel for a while, I section it on the band saw and braze it back together in a new format, many times integrating fresh weaving over the original surface. When the new structure is finished, brazing, patination and gold leafing are repeated. This process will continue until I am satisfied with the final vessel."

After all this reworking and manipulation it is surprising that in Bacharach's finest pieces his original sense of spontaneity still endures. His small gaming cup is a fine example. Its unpretentious appearance conceals the many hours and careful planning that went into its creation. The bulging base of this cup, pierced by numerous vertical slits, seems as if it is straining to burst its seams. Above this swelling, Bacharach has incorporated a woven section, slightly skewed, so that the unwoven weft strips at the edges form diagonal lines. These lines continue around the piece, visually forcing the observer to rotate it. On the opposite side the diagonal strips criss-cross over a solid background before recombining into the woven section. The cup's rough texture and heavy patination not only add life to this inert form, but also help to unify it. The brass rim which tops all his vessels, satisfyingly completes the piece.

Bacharach's mastery of patination plays a key role in the effectiveness of his work. Because of his fascination with this form of coloration he limits his materials to copper and bronze alloys. "They have the ability to take on a multitude of patinas, producing countless color variations," he notes. However, patination can be a very serendipitous technique. "By using several different alloys and brazing rods in each piece, I can control the basic color and pattern, but there are always surprises," he says. "I control and vary the coloration with paper and wax maskings, heat and acids. When the weaving and patinas are completed, but before I seal the piece, I may intensify or accent the finished vessel with paint or gold leaf."

*Ama Vessel*, woven copper, braised and colored with heat and patina chemicals, surface treatment in gold foil and paint, 17 × 6"

**Left:** *Urn*, woven copper, bronze rim, red/black patina, 12 × 7". **Right:** *Gaming Cup*, woven copper, bronze rim, red/purple patina, 6 × 5½"

On his large urn, Bacharach's painterly use of patination is somewhat reminiscent of the abstract expressionists' use of stain in painting. On the crumpled and torn copper ribbon which circumnavigates the vessel, he has applied blotches of color that flow onto the woven strips beneath it. In this manner he manages to effectively integrate this added piece into the whole. This ribbon, with its sensitive patination and texture, provides a focal point for the urn as well as adding depth to the surface.

In this piece Bacharach uses wide, fuzzy black diagonals, softer and more subtle than in the gaming cup, to lead the viewer around the piece. However, as one turns this vessel the weaving abruptly ends. In its place, against a richly colored red background, are two narrow, almost parallel, horizontal lines of gold leaf bisected by an undulating black line. While both sides are truly handsome, the sudden change in style is somewhat jarring.

Perhaps because Bacharach's work is so dependent on spontaneity, serendipity and subtlety, not all his pieces work equally well. If the patination, texture or form is deficient in any way, his vessels lose their visual strength. But when all the elements come together successfully, the results can be impressive.

Although Bacharach has been weaving metal for five years he is still intrigued by the unexplored possibilities and plans to continue to push his woven forms in new directions. "I am looking now to give the surface of my pieces more depth by broadening my pallet of patinas and by experimenting with other techniques of surface manipulation such as raku and shibori. Additionally, I've begun to use a loom I designed that will allow me to produce complex weaves in metal for architecturally sized vessels and wall panels."

A change in scale will certainly pose new challenges to Bacharach. It is a reflection of his artistic temperament that he is unwilling to rest on his past accomplishments. ■

*David Bacharach's work was shown in a group exhibition at the Craftman's Gallery in Scarsdale, NY in April, and a one-man show was held at Signature Gallery in Boston in October, 1984.*

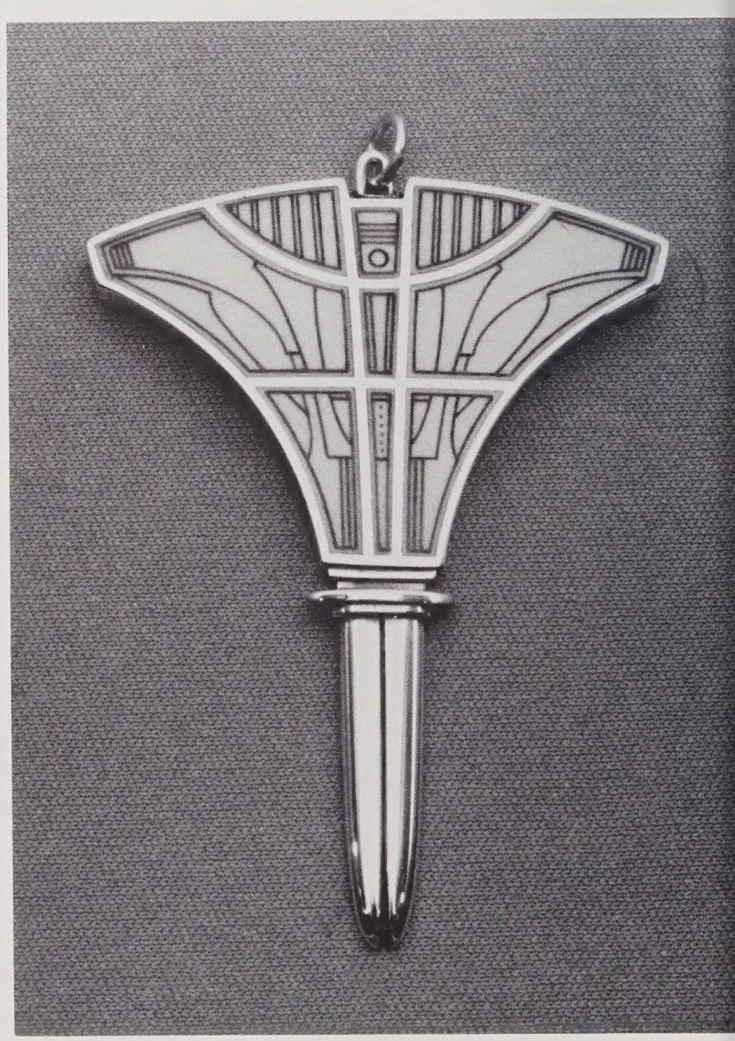
# BEYOND THE BENCH

*by Akiko Busch*

*This is the third in a series of articles about production jewelers. This installment concentrates on marketing production work.*

Because production line jewelry provides a feasible means of support, as well as a way to produce well-designed pieces at affordable prices, most production jewelers will agree that monetary considerations have directed their vocations. Yet if economics motivate, it follows that how the line is marketed is of no less consequence than how it is developed on the bench; making the line visible is as important as making it in the first place. In fact, considering that most jewelers have had little or no business training, marketing and selling a production line can often be more challenging than actually producing the pieces.

Because their business background is so limited, jewelers almost always arrive at sound marketing strategies through an arduous trial-and-error process. Once achieved, the strategy, as opposed to the worth of the work, can be what makes or breaks financial stability. The strategy begins with pricing, itself often the result of a long learning process. While jewelers employ disparate techniques to price their work, most are nevertheless likely to agree that pricing formulas must remain flexible; the equation, however complex, needs to be loose enough to accommodate shifts in market and fluctuating costs in material and labor. Thomas Michaels of Thomas Michaels Designers in Camden, Maine figures "price of gold used, plus labor, plus cost of diamonds used, plus diamond markup, plus marketing and sales commission costs all add up to the wholesale price of a piece." For Patricia Daunis-Dunning of Daunis in Portland, Maine, the equation considers time, materials, profit and overhead. Dan Fleckenstein and Keith Lewis of Ars in High Falls, New York determine price by determining what the market will bear, cost of materials and "how easy it will be to screw up a particular piece." They add that "For precious metals, it seems to boil down to about three times the cost of materials, but it would be oversimplifying to say *this* was the entire formula." While the equation varies with each jeweler, what doesn't vary is the dictum that pricing remain flexible.



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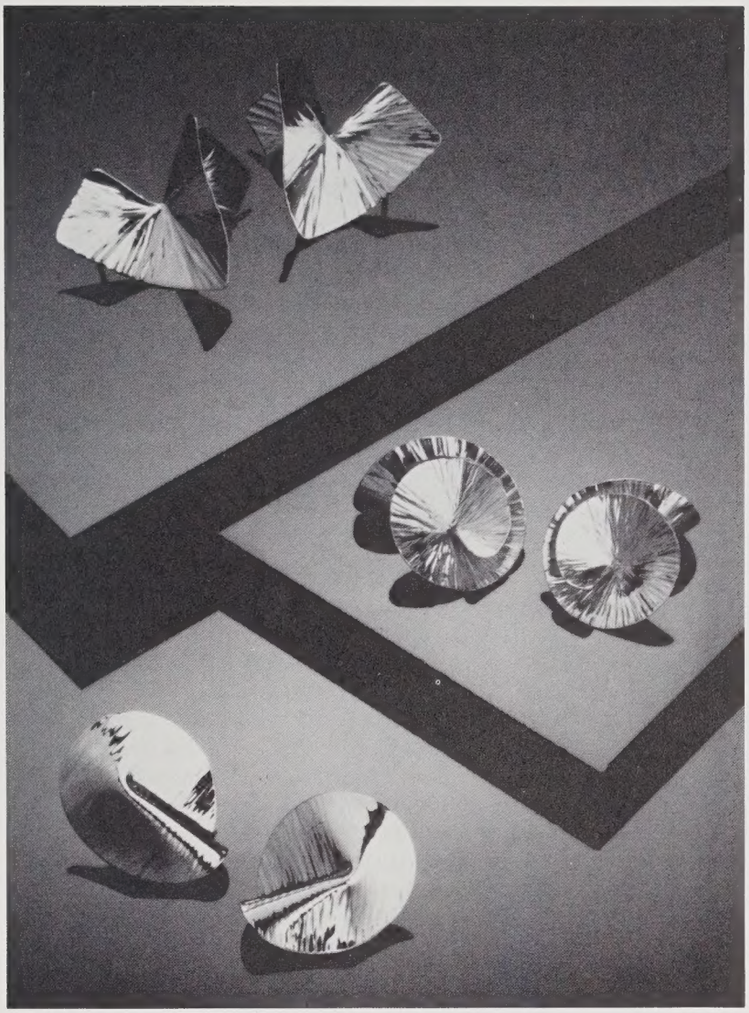


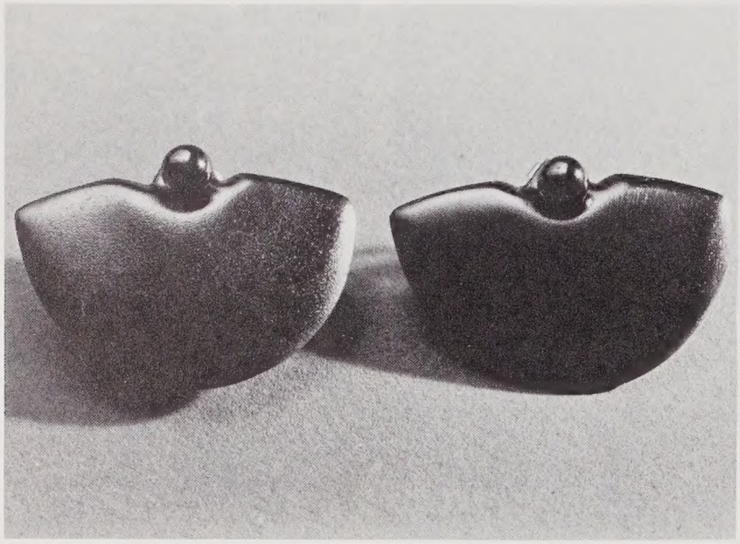
## Daunis

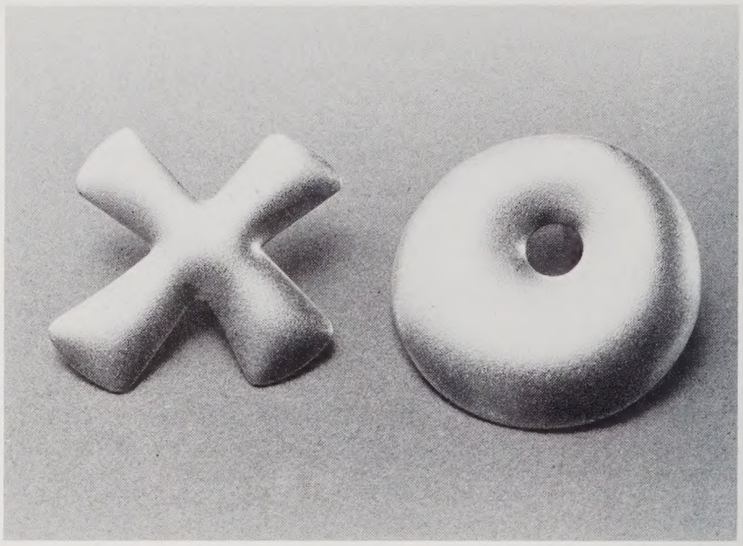
**Designer: Patricia Daunis-Dunning**

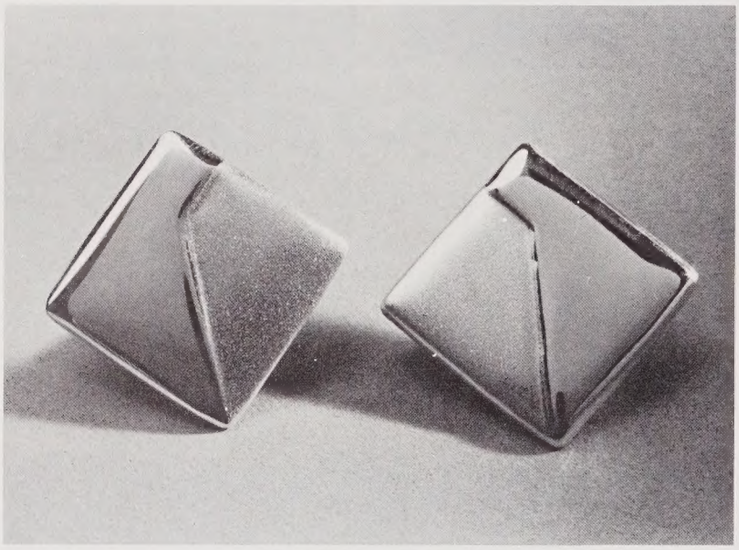
**Description of Jewelry Line:** Affordable, wearable, high-fashion jewelry with the integrity of fine art, but which is designed to be mass produced in 14- and 18k gold, sterling silver, copper and brass. All work hand fabricated, except for casting. Has been selling a jewelry line for two years full time and three years prior to that part-time. Introduces a new line of work two to three times a year.

**Business Setup:** Corporation. Employs six full-time and one part-time workers, trained mostly on the job, and two sales reps. Attends Rosen Fairs and Jewelers of America shows.

**Education:** Studied metalsmithing at Rhode Island School of Design, Haystack Mountain School of Crafts and Gemological Institute of America. Worked in jewelry industry.







## Ars

**Designers: Dan Fleckenstein and Keith Lewis**
**Description of Jewelry Line:** The line breaks down into three categories: low-priced, accessories-oriented anodized niobium jewelry; silver bridge jewelry, and unique pieces from anodized niobium. Emphasis is on design, quality of finish, graphics and sometimes humor. Work is all handmade, except for findings, such as pinbacks, earring posts and clips. Other materials used are gold, stainless steel and monel. Has been selling a line of jewelry for over two years; introduces new pieces or makes deletions and revisions about three times a year.
**Business Setup:** Partnership. Besides the two partners, business employs one other full-time worker and one part-time. Line is advertised nationally. Attends crafts fairs, such as Baltimore, Lincoln Center, Rhinebeck, WBAI, and San Francisco and the Fashion Accessories Expo.
**Education:** Art school.

No less critical than how production pieces are priced is how they are marketed. Craft fairs and trade shows are the two avenues most traveled by the jeweler exhibiting his work to wholesale buyers from department stores, boutiques, museum shops and galleries. Studio sales can help as well, and personal visits to shops and galleries, though time consuming, can lead to sales that more than make up for the time. And often, it is not so much a question of finding the right single route, as finding the right series of routes that will meet and connect with one another to make for a sound, overall plan. On top of this is the fact that advertising and additional print promotion can be what determines the ultimate success of the marketing plan. Michaels, for example, attends JA (Jewelers of America) trade shows twice a year, selecting it for the way in which "the show is merchandised and marketed to potential buyers and for the quality of attending buyers." But he reinforces the image he makes at JA with advertising in national trade magazines, catalog stuffers, trade magazine editorial coverage and, finally, regional sales representatives. Ed Miller in Kent, Ohio, on the other hand, has taken the art fair route and sells his work through a variety of different regional art and craft fairs throughout the East and Midwest, deciding which will be most profitable by past experience and by word-of-mouth. Fleckenstein and Lewis depend on a balance of both craft fairs and trade shows, determining which to attend by analyzing wholesale potential. But they also depend on personal visits to stores and galleries, promotional mailings and commissioned representatives. It is, as Michaels concludes, "difficult to measure individual effectiveness but easy to see the results of the whole program. I think the answer lies in an effective coagulation of all marketing techniques." It should be noted here that these marketing strategies are aimed toward the wholesale buyer. These production jewelers do little or no work on consignment.

Whatever the strategy, most of these jewelers will agree that it is only enhanced by personal contact. Miller has found that personal contacts made at shows make for the most effective marketing. For Fleckenstein and Lewis, it is personal dealings with galleries that has rendered them such a successful outlet.

Fashion magazines are another avenue for promotion, although the actual success rate appears to be controversial. "Any good publicity simply adds to the impact of the total image," says Michaels, who has benefitted from visibility in this medium simply by sending the requested materials to editors. Daunis-Dunning, on the other hand, calls it "a waste of time and energy and a loss of jewelry. Editors take samples and 'lose' them, or 'misplace' them." She advises that jewelers be prepared to donate pieces to the magazine as they will not be reimbursed for the "loss."

The salability of a production line also depends upon how it accommodates the market, or, rather, the whims of the market. Particularly in the jewelry industry, which has more than a nodding acquaintance with the fashion industry, taste, trend and recognition of what's in vogue will have much to do with the marketability of a production line. "You have to keep your ear to the ground" says

## Thomas Michaels Designers

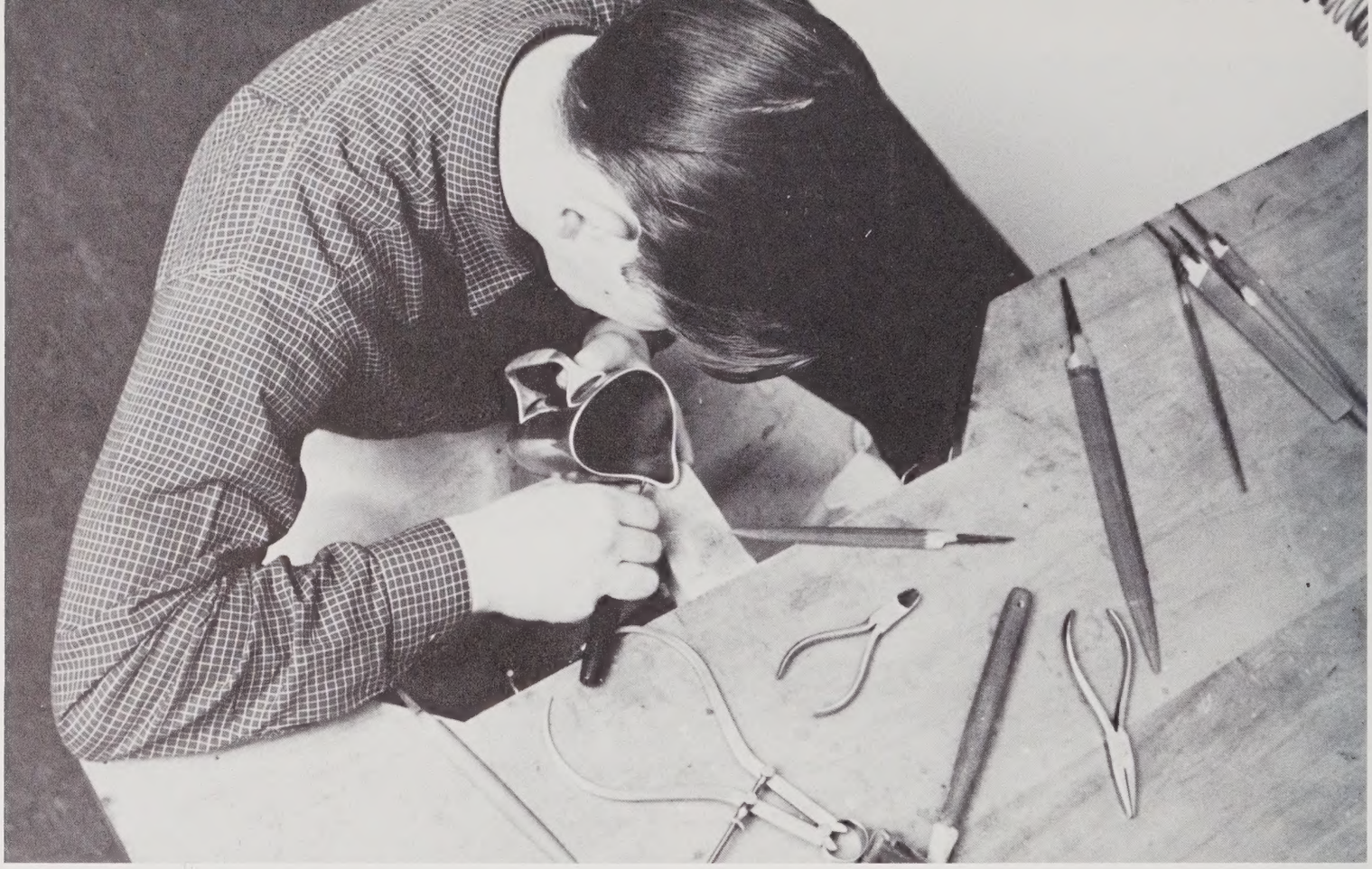
**Designers: Thomas Michaels and Nora Hattman Michaels**
**Description of Jewelry Line:** An exclusive, hand-finished cast and fabricated line in 14- and 18k gold and platinum with diamonds, contemporary American in concept. Has been selling a jewelry line for five years. Introduces new pieces to the line generally twice a year for the spring and fall markets.
**Business Setup:** Solely owned. Employs three full-time and four part-time workers, all of whom have strong art metalsmithing backgrounds, but have been redirected as industrially oriented designer craftsmen/technicians. Attends Jewelers of America shows spring and fall. Work has appeared in fashion magazines. Advertises nationally.
**Education:** Thomas Michaels is a third-generation American metalsmith who studied with his grandfather, an artist silversmith, and with his mother, a contemporary jeweler and educator. He studied at Kent State University with Mary Ann Scherr, at the Cleveland Institute of Art with Jim Mazurkeiwitz and at the University of Akron with Bill Neumann. He later worked in the "trade" as a "benchman/mechanic."

Daunis-Dunning, "for new thoughts, if nothing else. My line changes with every show." Likewise, Miller accommodates the market simply by retaining pieces which sell and removing those that don't. And while he claims to disregard fashion trends, he nevertheless does change his line every 18 months or so, replacing work with lower sales with work "that seems to have the broadest appeal."

While it might seem that the production jeweler's sales are to some degree at least dependent on the fancy of the fashion industry, jewelers have also discovered that there is another side to the coin. The creative jeweler may discover that his work can direct, as well as be directed by, the market. Says Michaels, "Being a trend-setter in the industry, I find that the market is created by the innovator. A new look or technique can always be brought to light and hence a new market established. Fashion trends are just that," he adds. "Colors and styles affect the fine jewelry designer minimally in that the buyer of expensive fine jewelry wants them to be timeless pieces of good design rather than just fad or fashion." There are two points to this. The first is simply that making jewelry, like any other creative endeavor, is an innovative process that can work to direct or shape popular taste, as well as answer to it. The second is that fashion is less influential in the fine jewelry market, in which expensive pieces are purchased for their classic appeal that will remain constant despite variations in popular taste. Pieces which are more affordable, on the other hand, may simply be bought to be worn for one or two seasons. And jewelers who recognize that these are two distinct markets that evolve from two very different buying incentives and market their work accordingly may enjoy the greatest profits.

While few jewelers would debate the fact that New York City is the hub of the marketplace, fewer still find that it is necessary to live there, or even to do most of their business there. "In fact," says Michaels, "we often get positive reactions from our buyers who know that they don't have to do business with 'the city.'" Likewise, Miller tries to keep his business in New York at a minimum, after a particularly disastrous experience with one gallery in which he was unable to collect funds owed him until his attorney threatened litigation. Add to this the fact that operating a studio outside New York City is decidedly less expensive, and the fact that these jewelers limit their time spent in New York to occasional trade shows and visits, and it seems a sound business decision (beyond being a personal choice of lifestyle).

The jewelers whose work has been shown here define their work in very different ways. Miller refers to his line as art jewelry, while Michaels calls his contemporary American fine jewelry; Daunis-Dunning sees her line as high fashion, while Fleckenstein and Lewis consider their work "commercial, art, and commercial art." What this tells us is that commercialism does not dictate the production jeweler's esthetic, as popular opinion would so often have it. As the work — and words — of these jewelers indicates, innovation and imagination can be sustained in production work. And it is a commercial approach to marketing rather than esthetics that ensures their profitability. ■



## A HISTORY OF THE

# SCHOOL FOR AMERICAN CRAFTSMEN

*by Deborah Norton*

The history of the School for American Craftsmen (SAC) can be seen as a microcosm of the history of the post World War II craft movement. Because of this a study of the former can help illuminate the latter. This is especially true of SAC's metalsmithing department where changes over the years in philosophy, curriculum and guiding principles have paralleled those in American metalsmithing in general. Former faculty member John Prip attributes this close relationship between the two histories to the fact that both the school and the larger metalsmithing movement have changed as society changes. Although clearly a leader in this field, Prip modestly states, "SAC faculty didn't change metalsmithing, society did."[1]

In order to understand the history of the School for American Craftsmen, it is necessary to go back many years to before its founding. Although in the 19th century William Morris led a crafts revival in England and America, the depression of the 1930s undermined much of what he had accomplished. Once again, inexpensive, machinemade goods, poorly designed and executed, caught America's fancy. Fortunately, in the 40s Aileen Vanderbilt Webb accepted the challenge to try to reverse this trend. In doing so, she created a program so thorough and far-reaching that fine crafts' permanent place in society now seems assured. Aided by a large inheritance from her maternal aunt, a copper fortune heiress, Mrs. Webb founded the craft shop America House, and later the American Craftsmen's Council (now the American Craft Council), the Museum of Contemporary Crafts (now the American Craft Museum), *Craft Horizons* magazine (now *American Craft*) and the World Craft Council, as well as the School for American Craftsmen.

The important role this school has played in the history of American metalsmithing can be attributed to the outstanding metalsmiths who have been a part of the school's history. A very abbreviated list includes faculty members: Philip Morton, John Prip, Ronald Pearson (also attended as a student), Hans Christensen and Albert Paley; alumni: Olaf Skoogfors and Svetozar and Ruth Radakovich; and even those who attended very briefly (maybe only a summer course): Fred Fenster, John Paul Miller and Arline Fisch.

Aileen Webb's involvement with crafts began long before the 40s. She was born in 1892 into a wealthy, socially prominent family who believed in "service to others." Her father, William Church Osborn, was president of the Metropolitan Museum of Art and most likely was instrumental in cultivating his daughter's esthetic sense. She became an accomplished, though amateur, potter, watercolorist and enamelist. Like other young women in her social set, especially her friend Eleanor Roosevelt, she was actively involved in social causes, trying to help those less fortunate than herself.

In 1930, seeking a way to help her rural neighbors in Putnam County, New York, who had been hard hit by the depression, she organized a home-based relief project, Putnam County Products, which found a local market for farm goods as well as for pottery, quilts and needlework. Encouraged by the sales of these craft items, Webb expanded the organization into the Handicraft League of America, which in 1940 opened a retail outlet, America House, in Manhattan. From these humble beginnings, in the early 1940s Mrs. Webb established a national organization called the American Craftsmen's Council (ACC) to promote and strengthen the burgeoning craft movement.

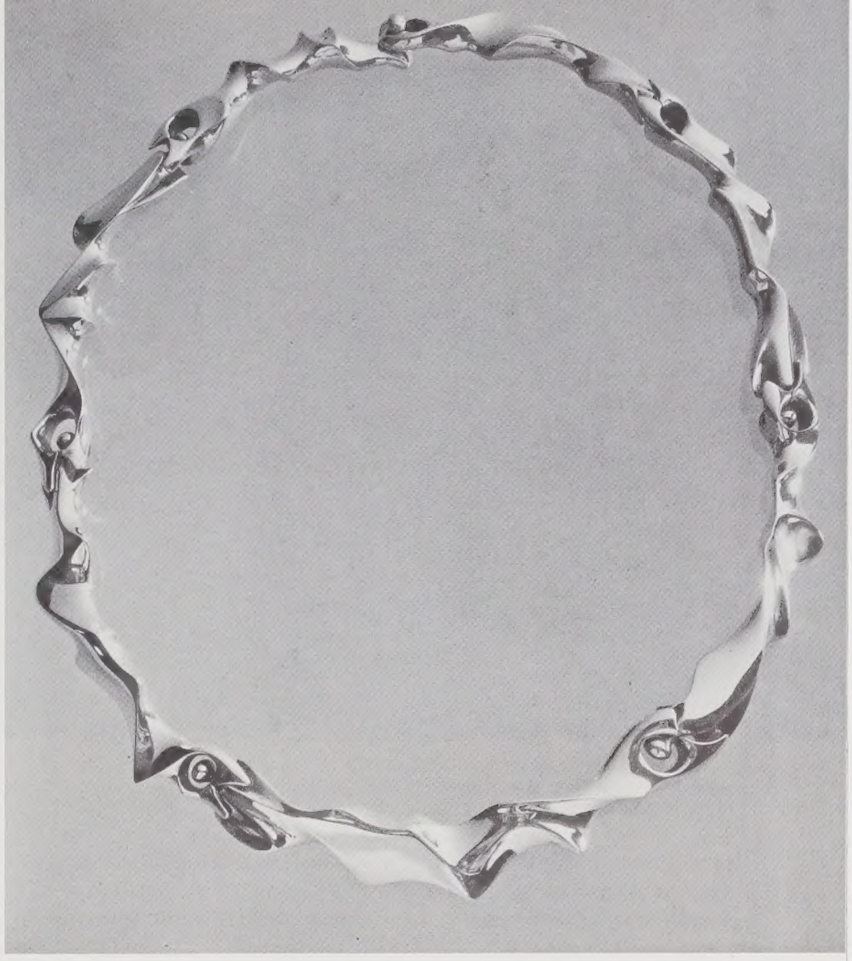
To the newly formed ACC, Mrs. Webb brought her concern that technology and an economic attitude based on planned obsolescence would mean the end of traditional handcraftsmen. The reigning philosophy that new was good and that each short period must have a new style was antithetical to craft values and esthetics. In the midst of dehumanizing industrialization and mechanization she felt that handcrafts could give society the human dimension it desperately needed.[2]

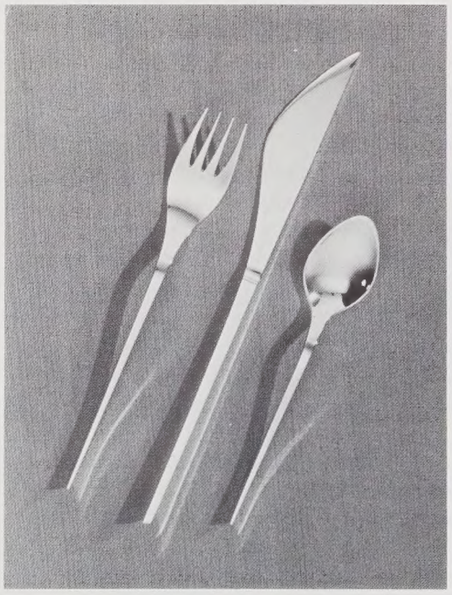
To train the craftsmen that were necessary for the survival of the craft tradition, the Education Council of the ACC proposed starting the School for American Craftsmen, whose purpose would be "to develop and raise the standards of the hand arts in the United States."[3] The Council trustees realized that if the project was to succeed, the students must be trained in such a way that would enable them to earn an independent living upon leaving school. Therefore, they sought to develop a program that would equip a person to become a producing craftsman, a member of a cooperative group, a worker in an industry needing fine skills, a teacher of crafts or a designer for the handmade object.[4] The trustees believed that if properly trained it would be possible for an individual to become self-supporting through craftsmanship, perhaps earning $35 to $50 per week, and have status as a respected member of the community.[5] Although their financial future would be modest, it was optimistically assumed that "men and women will turn to the hand arts because they will be working at something they like and which will create for them a way of life which will bring happiness." The program would be open to all, but it was thought that the independent lifestyle of a craftsman would be ideally suited to returning disabled veterans.[6]

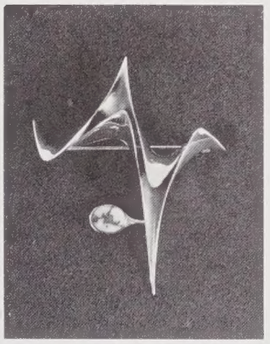
With no similar program in existence to serve as a model, the trustees had only their idealism and naivete to rely on in establishing school guidelines. It was suggested that the training should be approximately six months or enough time to enable the individual to obtain sufficient knowledge to begin production. To insure the greatest possible flexibility, instruction would be individualized and a student could be accepted into the program at any time of the year.[7]

Realizing that six months might not be quite enough time, the trustees decided that there would be a continuation program. "Certain communities will be made centers for various crafts and opportunities thus presented will be made to men wishing to establish themselves in such communities. Continued aid in training and marketing will be made available to those who wish to return to their home communities."[8]

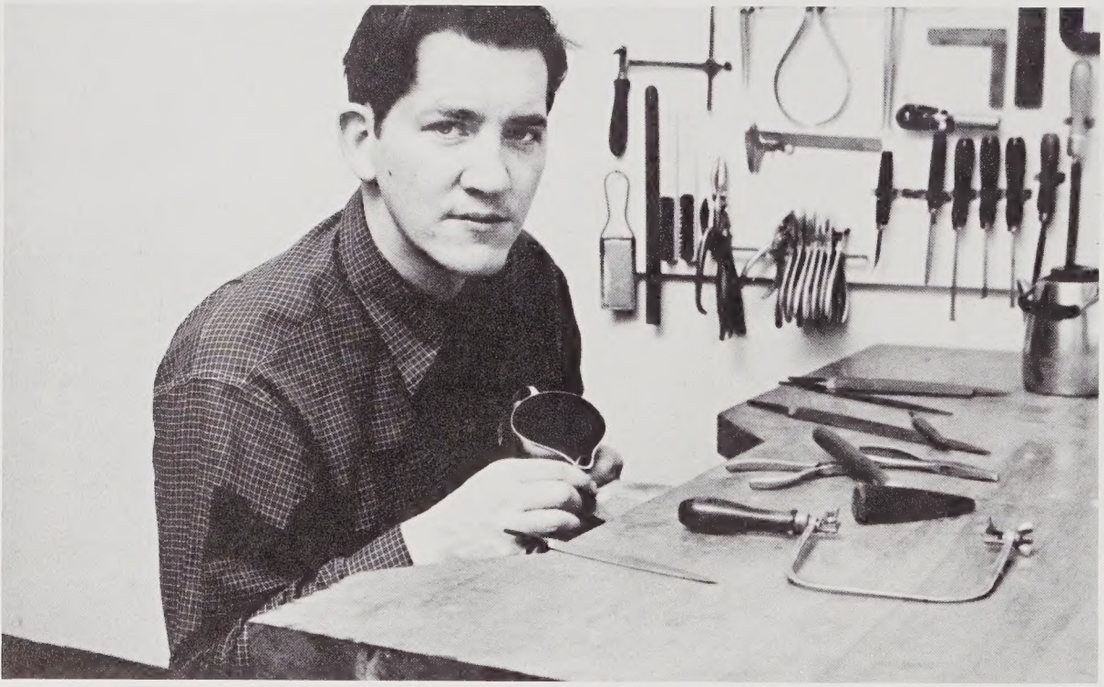
Because the emphasis of the school was on preparing students to earn a living, it was deemed essential that all teachers be produc-







**Top:** Ronald Pearson, *Necklace,* sterling silver, 1954; **Center:** Ronald Pearson at Shop 1; **Right:** *Flatware* designed for silver, 1960; **Far right:** *Pin,* silver with stone; Photos: courtesy American Craft Council



**Above left:** John Prip; **Above right:** John Prip, holloware, silver

ing craftsmen. School mornings would be devoted to theory, technique, tools and understanding design. Courses in marketing and pricing would also be taught. Afternoons would be for production. It would be the teacher's duty to set up and operate a shop which was to be ideally arranged and equipped for large quantity production on a cooperative basis. Student designs were to be judged by a committee of specialists in art and merchandising and if found satisfactory would be put into production. Marketing outlets were to be provided through America House and other recognized craft organizations.[9] The trustees felt it was important to train students in production work because "multiple work, well planned and executed, will bring in a cash return which can be controlled at will and will free a craftsman for creative work of an individual character."[10]

To ensure that students would achieve high artistic expression and quality in their work, it was felt that the term "good product" needed to be defined. It was decided that such a product would be one that had the following attributes: "Beauty of design; well executed technically; functional—must meet a real need of use or decoration; must be part of a 'line' and so usable with other products; must meet fashion trends; and must be a correct price."[11]

With guidelines and a philosophy in hand, the School for American Craftsmen opened at Dartmouth College in Hanover, New Hampshire in 1944. In 1946 Mrs. Webb decided to move the school to Alfred University in Alfred, New York. The precise reason for the move is unclear but may have been due to the large number of returning vets at Dartmouth, leaving little space for SAC, or perhaps the climate there just did not seem right to Mrs. Webb. In any case, by the time the school moved to Alfred certain changes had taken place. The program now lasted two years, with students attending classes 11 months a year, 40 hours per week, to simulate working in the "real" world. Although producing marketable goods was still the main emphasis of the school, there was no formalized industry-style production system as there had been at Dartmouth. And the continuation program was abandoned.

Regardless of the school's location, it had no problem attracting outstanding faculty and students because of the uniqueness of its program. Although other schools, such as the Cranbrook Academy of Art in Michigan, taught crafts, it was as part of a more diversified course of study, usually including painting and sculpture. The School for American Craftsmen was the first to isolate crafts as a full-fledged curriculum and professional endeavor.

One of SAC's early noteworthy students was Ronald Pearson, who enrolled in the school in 1947. Pearson, son of Ralph M. Pearson, an etcher, teacher, writer and art critic, first heard about SAC when a friend gave him an early brochure about the school. "I was fascinated by it," he remembers. "I had always been interested in doing things with my hands." Unable to attend immediately because he was serving in the Merchant Marine, he convinced his sister Lorna to enroll. Her enthusiasm prompted him to follow suit as soon as he was able.[12]

True to the school's founding intentions, in 1947 SAC was a place primarily for servicemen looking for a more meaningful life, Pearson remembers. It was basically a shop to teach production methods with very little else. "You came, and you learned how to do it and to get some kind of stimulation—it was really a first stepping stone," he recalls. "It wasn't intended to do everything for you. This was up to the individual."[13]

Pearson studied under metalsmiths Laurits Eichner, Charles Reese and Philip Morton. From the beginning a policy was established by Eichner and Frances Wright Caroé, director of America House (and daughter of Frank Lloyd Wright), to emphasize holloware over jewelry. Reese, a violin maker and musician, was a technically accomplished silversmith, according to Pearson. "He was great at raising but not as creative and open as Morton." It was Morton that had the greatest influence on Pearson in those early years. "He was a fabulous teacher. His emphasis was on design and esthetics." He required his students not only to master technique but to search for the meaning of the forms which were being made.[14]

Not everyone was as pleased with Morton's performance as Pearson and at the end of the academic year Morton was asked to leave. Pearson attributes Morton's departure to the fact that both Morton and Mrs. Caroé possessed very strong personalities which clashed. John Prip, who replaced Morton, felt that the problem stemmed from the fact that Morton represented more of a purely esthetic approach which did not fit in well with the school's practical philosophy.

In protest to Morton's departure, Pearson left SAC at the end of his first year with the intention of becoming a producing craftsman. When informed of Pearson's decision, Morton told him he would never survive on his own unless he knew how to make jewelry. Consequently Morton, using his apartment as a classroom, gave Pearson a one-month crash course in jewelry making which proved invaluable to Pearson when he set up his shop in Alfred.

In 1948 Harold Brennan was hired as director of SAC. Perhaps his greatest contribution to the school was the faculty he created. In the early years especially, he recruited vigorously in Scandinavia because there were almost no master craftsmen in America. "I

knew that a good school meant a good faculty. A group of superior teachers generated a dynamism much greater than the sum of their talents," Brennan said recently. "So finding good teachers was my principal job."[15] Brennan hired people with strong beliefs and gave them free reign, with very little administrative interference.[16]

In 1948 one of the newly hired Scandinavian teachers was John Prip. Although Prip was born in the United States, his family returned to their native Denmark when he was 10 years old. Sixteen years later, as a fourth-generation silversmith, Prip was content with his environment in Denmark, but was curious about his country of origin. Because of the war he had been unable to travel. Then, through the Danish Society of Arts and Crafts he heard about the job opening at SAC in Alfred. At age 26 he joined the faculty.

Coming from a trade background Prip brought with him a knowledge of how to earn a living as a producing craftsman. When asked recently what his artistic philosophy was at the time, he answered, "I never thought in terms of having a philosophy. In Denmark I had a 'philosophy' based on the reality of the situation—you did what you were told. It was very technically oriented. At Alfred the school already had a well-formed philosophy which I easily adjusted to. It was very practical—teach students to go out and make a dollar an hour."

Although equipped with a very practical outlook, Prip was immediately impressed with the freedom and inventiveness of American metalwork. "What was being done in America was more interesting to me (than what was being done in Europe)—the work of Margaret de Patta, Sam Kramer, Paul Lobel, Bob Winston and Phil Morton. Most had trained as sculptors or painters or in other design areas. They were self-taught in jewelry. The technical quality of American work wasn't very good, but it was done with spirit and determination and very often with a great deal of imagination."[17]

For the first time in his metalsmithing career Prip was now free to experiment. "I was discovering so many new things," he recalls, "that I felt like a student myself." The inventiveness of Prip's forms went far beyond the Danish modern tradition he had been trained in. "Prip studied forms as a poet studies words," Albert Paley recently said in describing Prip's approach to metalwork.

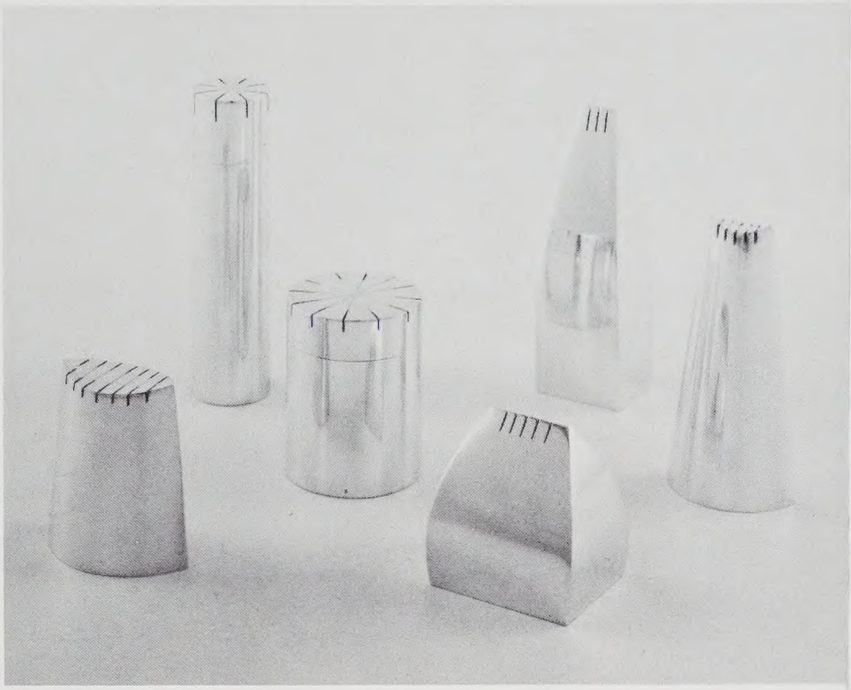
Prip had no problem adjusting to the policy of emphasizing holloware, although he did experiment with jewelry. "My background was mostly holloware," he says. "There were very few sources to learn from at the time so you basically taught what you knew." The stress on holloware was further reinforced when SAC hosted two of the Handy & Harman workshops on the subject.

To Prip the spirit that pervaded SAC, primarily stemming from the post-war mood of America, was its most impressive asset. "People were tired and disillusioned after the war. Many saw crafts as an alternative way of life," he explains. "It was a really vigorous learning situation which everyone accepted wholeheartedly. We worked 'round the clock, seven days a week. If you locked the office, students would come through the chimney. The silver cabinet was always open. The school was loose and free as could be."

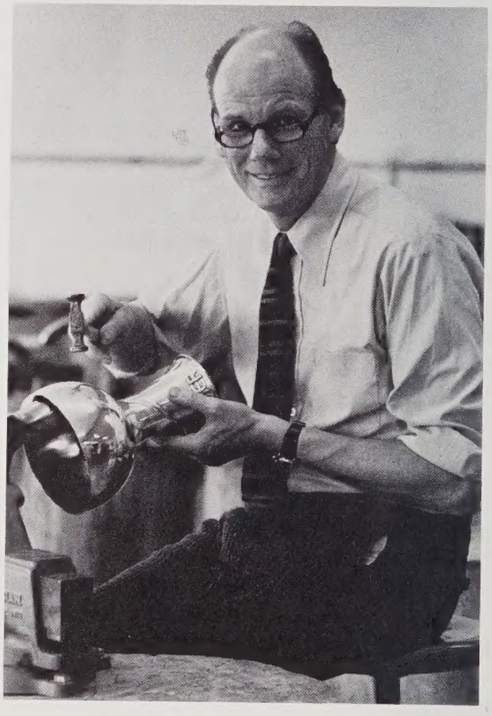
Although salaries were meager (Prip was paid $3200 per year in 1948), the faculty was too caught up in what they were doing to question the pay. "No one was asking, 'Do I get time and a half for overtime.' We lived our life around the school. We socialized together. We worked together," he recalls.

One result of the low salaries was to reinforce the founding principle of insisting that teachers be producing craftsmen. "I had to make things on the side and sell them to survive. It wasn't a question of whether I wanted to make things or make something occasionally to send to a show."[18] With the production program still very much a part of the curriculum, once a month Prip loaded his station wagon with student and faculty goods and drove to America House in New York City.

In 1950 two events occurred at the school which had far-reaching effects. The first was the addition of ceramist Frans Wildenhain to the faculty. Trained at the Bauhaus in Germany, he had spent the war years in Holland as a production potter and teacher. Wildenhain, a strong, mature artist had a great influence on all departments. "He had a stature that other faculty members lacked," notes Ronald Pearson. "He challenged people, made them



**Top:** John Prip, containers, silver; **Center:** *Teapot*, silver; **Above:** *Bracelet*, silver. Photos: courtesy American Craft Council



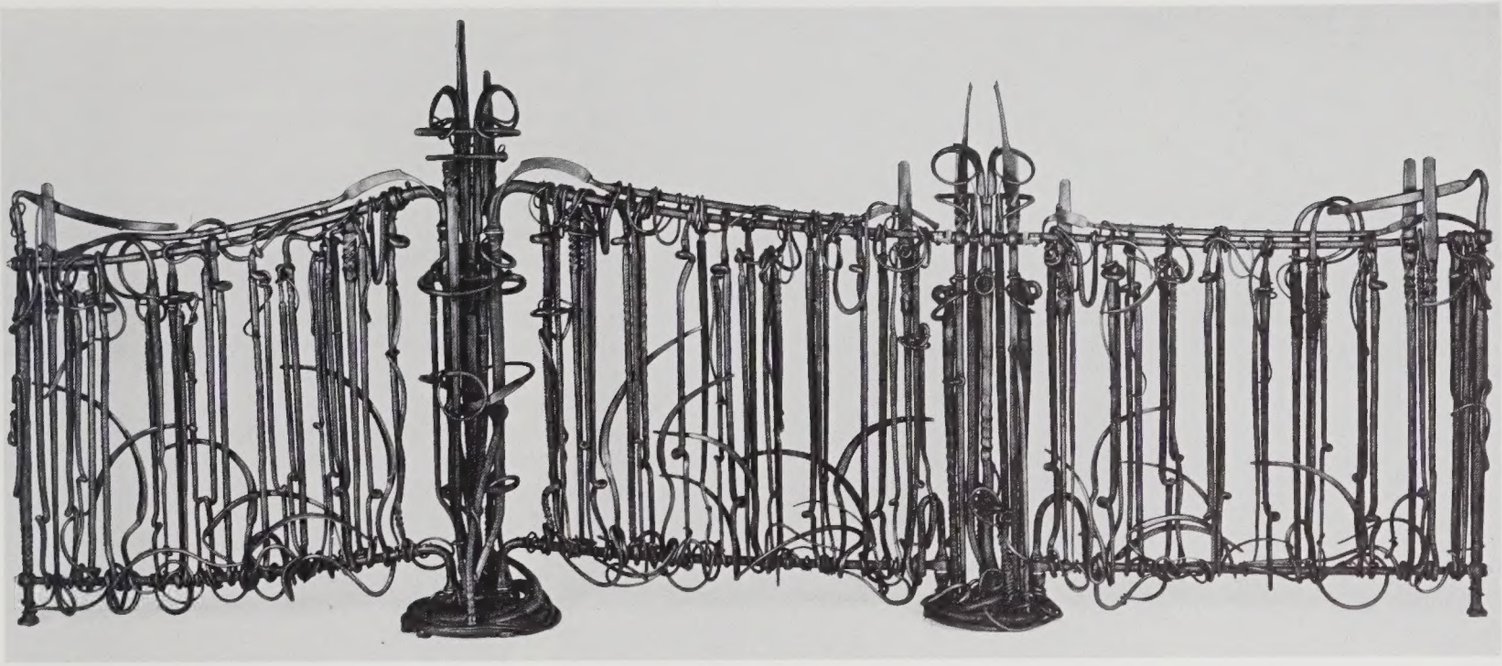
**Left:** Hans Christensen, *Candelabra,* silver; Photo: Len Rosenberg; **Top:** School for American Craftsman downtown campus at R.I.T.; **Above:** Hans Christensen; **Opposite page:** Albert Paley, *Architectural Screen,* mild steel, bronze, 8½ × 19 × 2′, 1983; Photo: Bruce Miller

think." "He was more experienced and more worldly," Prip explains. "I was just scratching around. More than anyone working in metal, Wildenhain served as my mentor." According to Pearson, Wildenhain was instrumental in slowly changing the schools main emphasis from production of goods to esthetic concerns.

The second event in 1950 was the relocation of the school, this time to its permanent home at the Rochester Institute of Technology in Rochester, New York. According to Harold Brennan, Mrs. Webb felt that the school ought to be in a larger community, where there was more access to a cultural life—music, dance, art galleries and citizens interested in the arts. It has also been suggested that SAC did not fit in well with Alfred University's highly technical orientation.[19] The move resulted in both losses and gains for the school. Gone were some of the freewheeling ambiance and the closeness between students and faculty. As Prip explains, "Being part of an institute meant we were subject to institutional rules and regulations. But because we were in a separate building we were able to maintain our identity. We felt we were different from the rest of the Institute. We weren't institutional people."

However, the gains were substantial. Access to a cultural community expanded the horizons of students and faculty. As a larger and better-financed institution, RIT was able to offer the school more funding for educational programs as well as an improved physical plant.[20] And, indirectly, the move to Rochester may have made possible the opening of Shop 1, for it is unlikely that such a bold undertaking would have been attempted in the small town of Alfred.

Shop 1, a shop and gallery selling fine crafts, was founded in 1952 by SAC faculty members John Prip, Frans Wildenhain and woodworker Tage Frid, and Ronald Pearson, who moved his workshop to Rochester following SAC's move. Although it had no formal ties to the school, its influence on SAC was substantial and vice-versa. The incentive to open Shop 1 was due to the lack of existing outlets for selling crafts. "Pearson used to pack his work into his old Buick and cruise up and down the streets of a town looking for



'contemporary shops' that might buy his work," Prip remembers. "He could tell which shops sold contemporary goods because they always had an Eames chair and a rubber plant in the window."

The items displayed at Shop 1 and the exhibitions held were unquestionable influences on the students of SAC. Located around the corner from the school, the shop was a gathering place for students, faculty, customers and out-of-town, peripatetic craftsmen who detoured to Rochester expressly to visit it. Much of the intimacy and closeness SAC lost in its move was recovered at Shop 1. "So much revolved around it, both professionally and socially," Pearson recalls. "It was somewhat like Black Mountain College."

In 1954 John Prip decided to leave SAC to become a full-time producing craftsman. He was wary of becoming an institutional person at RIT, just putting in his time until retirement. As his replacement, he suggested his former associate Hans Christensen, then head of Georg Jensen's model department in Denmark. Because of Christensen's great technical knowledge and trade background, Prip knew he would be sympathetic to the aims of the school. Although Prip admired many American metalsmiths, he was afraid that these former painters and sculptors with their artistic point of view would clash with SAC's very practical approach. "The purpose of the school was to send people into the world to survive, not to become artists," Prip reiterates.

With much coaxing, Christensen came to SAC in 1954 and firmly affixed his Danish Modern style to the metalsmithing department. He arrived with a well-thought-out philosophy that adhered to the current moderist aesthetic. In an article in *American Artist* Harold Brennan described Christensen's approach to metalwork this way: He insists "that the design be practical—that is, it should handle easily, with the forms related to function and the structural means." In the same article Christensen is quoted as saying, "I feel that silver needs little ornament if any. The silver surface with its rich effect of light and shadow . . . makes decoration superfluous."[21]

Christensen was critical of some of the trends he found in American jewelry. "I feel that jewelry design today should be questioned. Often it is but miniscule sculpture and sometimes the shapes developed—in order to make them visually rich —in such a fashion as to make them a hazard to the wearer and anyone who comes near her! It appears that there has been a too strenuous search for novelty in contemporary jewelry, and the resulting forms are usually suggestive of exaggeration and strain. Jewelry should decorate the wearer, always in character and secondary to her interest and personality . . . Also, it should be materially and structurally coherent—not just an aggregate of sculptural shapes reduced to pygmy scale."[22]

As with Prip, Christensen's trade background and his belief in a student's need for technical training fit in well with SAC's practical approach. "I feel that students particularly in this country, are putting too much emphasis on becoming artists rather than on learning first to be good craftsmen."[23] He was more comfortable with holloware, still the main focus of SAC metalworkers, than with jewelry. However, in later years, when interest in jewelry increased, Christensen began producing more jewelry.

Ronald Pearson remembers Christensen as a perfectionist. "He was a wonderful person, but sometimes difficult to work with." In the early years he emphasized design less than technique. "He believed in the Danish approach that once students had a firm technical background they could go on to other things."

In 1959 Pearson returned to SAC, this time as a member of the faculty. He still maintained an independent shop and felt his continuing work as a craftsman and designer formed the real basis for what was valuable in his teaching.[24] Philosophically he agreed with Christensen that jewelry should be functional. "Jewelry is for the human form—to compliment it, not to use a person as a pedestal," Pearson still maintains.

As late as 1961, the last year Pearson taught at SAC, the issue of art versus craft had not become important. Even today Pearson is uncomfortable with it. "I don't like the concept of craft as art," he said recently. "Craft is an art." Like others at SAC, his aim was to produce beautiful crafts, not art.

Because Pearson was so involved in producing marketable goods, it is somewhat surprising that he was not more supportive of SAC's program of selling student work through America House. "I felt it wasn't very practical," he explains. "The students' work wasn't good enough. They weren't ready to be making things for sale. It conflicted with their efforts to develop skills." Pearson recalls that one of the original concepts behind student production of salable crafts was to earn money for students to help offset tuition fees. "But most students had the GI Bill and didn't need the money."

Although others were very strongly in favor of the production program, sometime in the early 60s, around the time RIT moved to its new campus, it was abandoned. "I don't honestly know how this change came about but it did," says Harold Brennan, "though I resisted it vigorously. Basically, there were probably two reasons: one, America House gradually lost steam, and bookkeeping and transporting work became more of a burden. And two, there was a transformation of the character of the metalworker, from artisan to artist. Many faculty and students became more interested in exhibiting than in selling and consequently they changed from being working professionals to being 'creative' artists."

This change of emphasis from producing craftsman to artist found full expression at SAC in 1969 when Albert Paley joined the faculty. Although Paley had been offered seven teaching positions upon graduation from Tyler School of Art, he chose SAC because he

felt, "It had the most professional framework, one in which I could manifest my philosophical beliefs."

Paley's beliefs, greatly influenced by the counter-culture movement of the late 60s, were very different from those of his SAC predecessors. While holloware had reigned supreme at SAC from its founding, under Paley's tutelage jewelry came to the fore. "In the 30s, 40s and 50s holloware was a real social symbol and there was a market for it," Paley explains. "But in the 60s, traditional values changed and holloware became a symbol of the lifestyle that many were rejecting. Contemporary jewelry, on the other hand, allowed you to express yourself as an individual. It projected an image of nonconformity which was an important aspect of the 60s social revolution."

Paley embodied the changed role of the craftsman in society. "Prior to the 60s, craftsmen were makers, artists were thinkers," Paley recalls. "I tried to bring crafts to the level of art by intellectualizing about it—by giving it more of an intellectual context. I resented the image of the humble craftsman."

His jewelry was equally intellectual. "I was concerned purely with esthetics, not with jewelry as a fashion accessory. My jewelry was meant for someone who was rejecting established fashion trends and who wanted to assert her own individuality."

In 1972 Paley resigned from SAC to pursue other options that offered him the flexibility he needed. In his place Gary Griffin, fresh from graduate school at Tyler, was hired.

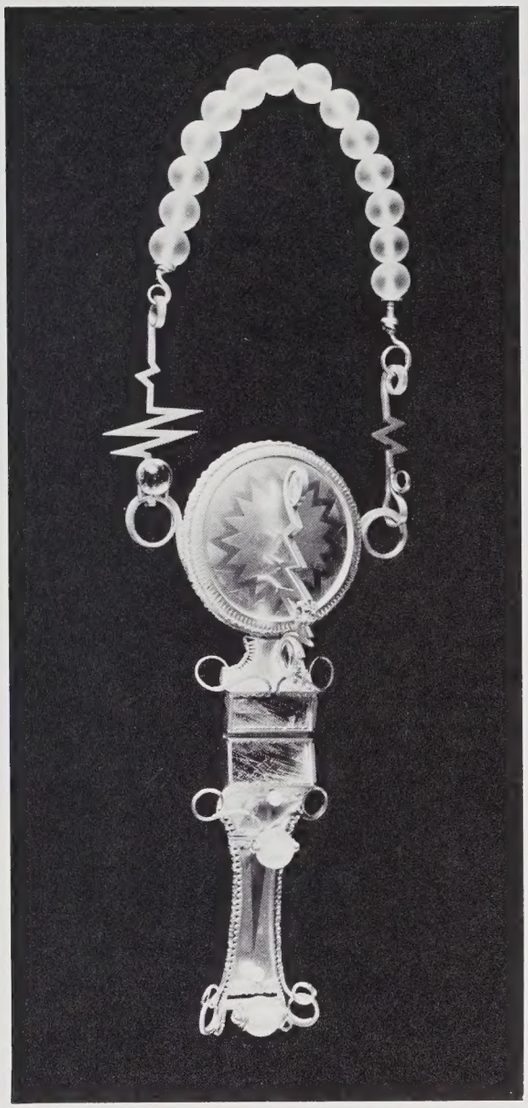
Griffin, well versed in craft philosophy and training, continued to pursue the concept of the artist-craftsman, a label considered progressive in the 60s. In a continuing effort to dissolve the boundaries between "art" and "crafts," Griffin dropped one of crafts' parameters—that of functionalism, but still maintained crafts' dictums of truth to materials and thought through process. But by the late 70s and early 80s the term artist-craftsman had become passé. Griffin, now doing one-of-a- kind sculpture, found that he was no longer a craftsman at all, but an artist.[25]

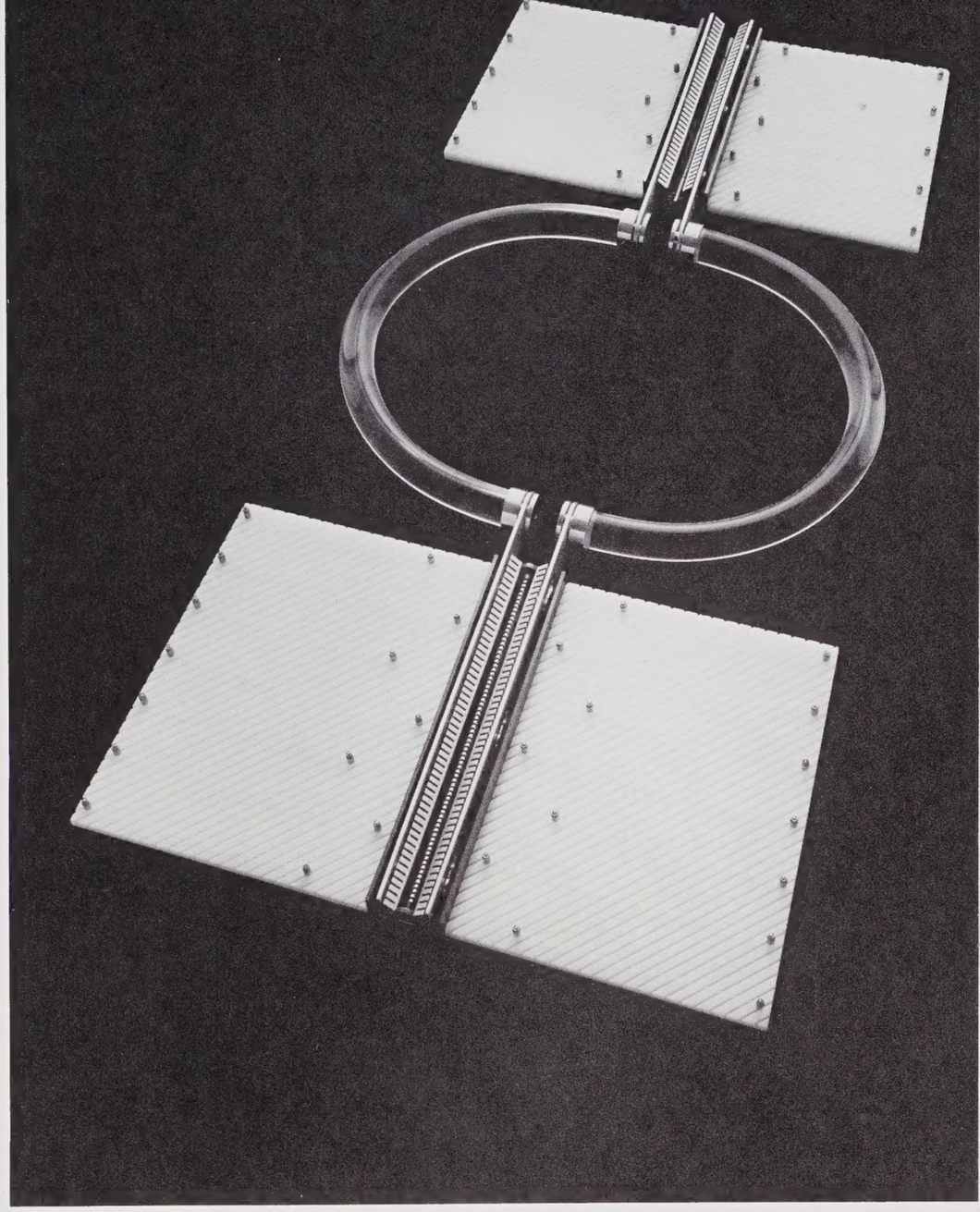
With the beginning of the new 1984–85 academic year, once again the tide at SAC may be turning. The current metalsmithing teachers, Leonard Urso and Mark Stanitz, have both worked as producing craftsmen before being hired to teach. Their functional pieces seem to have more in common with the craft traditions of the early years of SAC than with those of the past 15 years. Echoing the original intentions of SAC, Urso says his main function as a teacher is to train students to survive within their field once they leave school. He is focusing on teaching them to design for industry and fashion and to use the computer as a business tool, as well as to become "artists" if they so choose. He feels creative thinking is the key to survival today.[26]

This new academic year also witnessed the appointment of Albert Paley and woodworker Wendell Castle as tenured professors and artists-in-residence at SAC. Assigned no regular teaching responsibilities, their primary job will be to organize national and international seminars. With these appointments, RIT has reaffirmed its commitment to crafts. As college President M. Richard Rose said, "This reinforces RIT's position at the forefront of institutions nurturing the art of the craftsman throughout the world."

Now in its 41st year, it is impressive that SAC still has the youthful vigor to initiate new programs such as the artists-in-residence. The fact that the School for American Craftsmen has been able to change as society has changed, yet still maintain its original purpose, "to develop and raise the standards of the hand arts in the United States," is surely one of its greatest strengths. ■

Gary Griffin, *Paddling on Canadice While Dreaming of Taos*, 79 × 13 × 13", steel, 1983





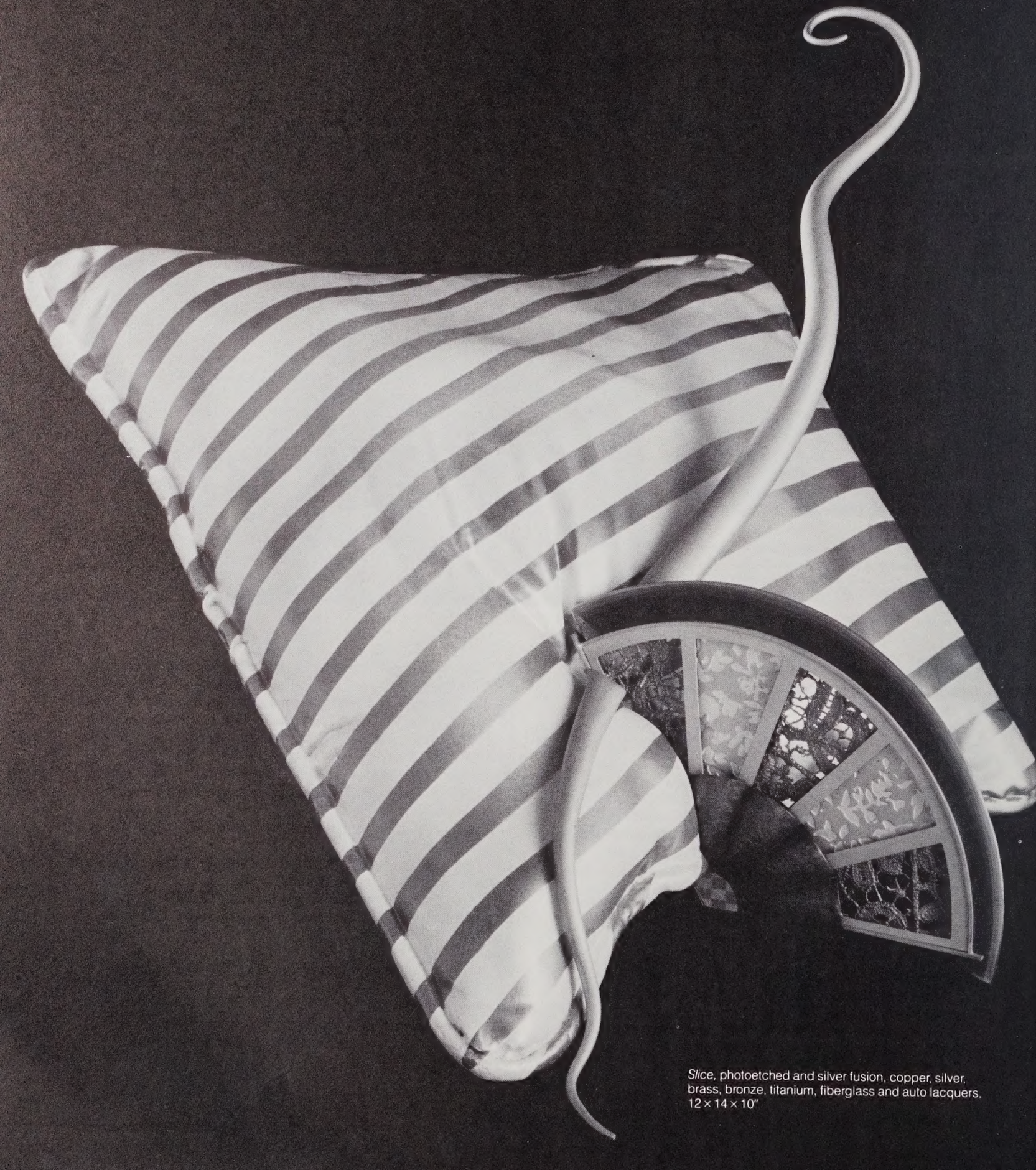
**Above:** Albert Paley, *Pendant*, sterling silver, 14k gold, kunzite crystal, glass, amethyst, pearls, 18×7×1½", 1972; Photo: Roger B. Smith. **Right:** Gary Griffin, *Collar in Repetition .0938*, delrin, aluminum, nylon, brass, 16×9", 1976

## Notes

**1** Conversation with John Prip, September 10, 1984. All other information and quotes about Prip, unless otherwise noted, are based on this conversation.
**2** Johnston, Robert, "25th Anniversary," published by Rochester Institute of Technology to commemorate SAC's 25th year at RIT, 1975, unnumbered pages.
**3** *Ibid.*
**4** "School for American Craftsmen New England Division, Hanover, New Hampshire," *Craft Horizons* (August 1945), p.8.
**5** "What's New Under the Sun," *Craft Horizons* (August 1944), p.1.
**6** *Craft Horizons* (August 1945), p.8.
**7** *Craft Horizons* (August 1944), p.1.
**8** *Ibid.*, p.1.
**9** "News of Educational and Cooperative Councils and the Affiliated Groups," *Craft Horizons* (November 1944), p.26.
**10** *Craft Horizons* (August 1945), p.6.
**11** *Ibid.*, p.8.
**12** Conversation with Ronald Pearson, September 10, 1984. All other information and quotes about Pearson, unless otherwise noted, are based on this conversation.
**13** Ronald Pearson and John Prip, "Metals: A Discussion," *Craft Horizons* (June 1966), p.30.
**14** Last sentence of paragraph only: Daniel Rhodes, "Form in Silver by Ronald Pearson," *Craft Horizons* (November 1960), p.17. (Rest of paragraph is based on conversation with Pearson 9/10/84.)
**15** Letter from Harold Brennan, September 14, 1984. All other information and quotes about Brennan, unless otherwise stated, are based on this letter.
**16** Conversation with Albert Paley, September 7, 1984. All other information and quotes about Paley, unless otherwise noted, are based on this conversation.
**17** Pearson and Prip, *Craft Horizons* (June 1966), p.29.
**18** *Ibid.*, p.30.
**19** Conversation with Barbara Cowles, former manager of Shop 1, and wife of faculty member Hobart Cowles.
**20** Letter from Harold Brennan, September 14, 1984.
**21** Harold Brennan, "Three Rochester Craftsmen," *American Artist* (June 1958), p.88.
**22** *Ibid.*, p.88.
**23** Hans Christensen, "Hans Christensen," *Design Quarterly* (1957), p.6.
**24** Rhodes, p.21.
**25** Conversation with Albert Paley, September 7, 1984.
**26** Conversation with Leonard Urso, September 18, 1984.

# FUSION PATTERNS

*by Kate Wagle*



*Slice*, photoetched and silver fusion, copper, silver, brass, bronze, titanium, fiberglass and auto lacquers, 12 × 14 × 10″

## Introduction

*This paper describes a process that combines techniques researched by others with a few well-known facts about the properties of certain metals. This information was applied to a metal fabrication process specifically designed to extend the images and forms that interest me. In presenting this paper it is my hope that others will find applications appropriate to their own work. I make this point because I know that we are already aware of quantities of techniques and processes, and I feel reticent about describing yet another when I see a much stronger need for development of ideas to apply them all to.*

*My work, for the last few years, has been concerned with literal images that include elements of pattern and fabriclike form. I have explored many different media with variations of these elements as a constant—fabric and metal, fiberglass constructions and casts, cement and, most recently, life-size figurative repoussé die forms painted with automotive lacquers. The photoetching and fusion processes provided an ideal method for producing a manipulable, patterned sheet stock for use in jewelry and small-scale pieces.*

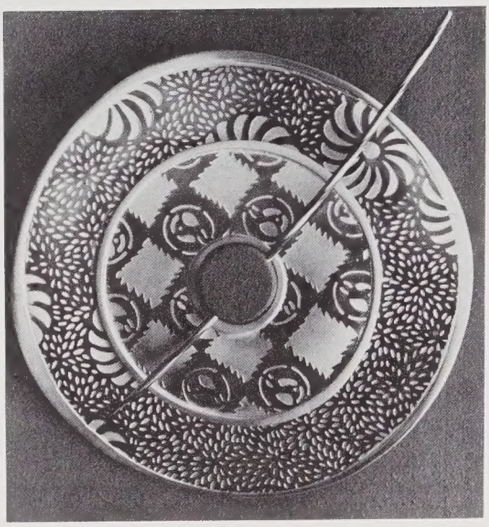
*Plating, married metals, soldered laminations and mokume-gane can all be used to produce multicolored sheet metal. However, each was inappropriate for my purposes. I wanted complex, controlled patterning that could be rolled, twisted, repousséd, stretched and raised. The phenomenon of brass/silver fusion at unexpectedly low temperatures is usually regarded as a problem. To me, instead, it seemed to offer a solution to producing the kind of multicolored sheets I required.*

*This bonding of brass and silver can be defined as fusion welding, in that the bond is formed using heat but not solder. It occurs when these metals are brought to a molten state at their contacting surfaces. Oppi Untracht defines the term in his book* Jewelry Concepts and Technology *(page 348) as follows: "The term* welding *implies that the surfaces are joined in a molten state, and* fusion *implies that an interpenetration of atoms occurs."*

## Background

Experimentation began with "found" perforated (approximately .0025") brass sheet. Variously patterned sheets of this very thin etched brass turned up at the scrapyard, discarded by local electronics manufacturers. Several attempts were made to unite different gauges of sterling silver with these industrially produced patterns. These early experiments produced varying results. In general, the thin stock was an unsatisfactory material. The welding process was very touchy. The etched piece moved a great deal, and patience, skill and pure luck were required to make it fuse to a thicker sheet of silver without melting. The brass sheet often sank suddenly and unexpectedly into the silver surface in a yellowish mass. Also, rolling, repoussé and other forming processes were severely limited due to the thinness of the patterned brass layer.

To reproduce patterns of my own choice, I theorized that a thicker brass stock would be not only more stable but less likely to fuse suddenly and completely. Experimentation with different patterns, alloys and metal gauges was necessary. My experiments showed that thicker brass sheets would indeed be more easily fused to the silver. However, as the thickness of the brass sheet increased, another problem developed. The etched perforations were smaller on the back surface of the piece than on the front. This resulted in unacceptable distortions of the pattern. Therefore, it was necessary to find the optimum brass thickness which would be thin enough to permit an even etch from front to back.



*Pad* brooch, sterling silver, brass, 4 × 4"

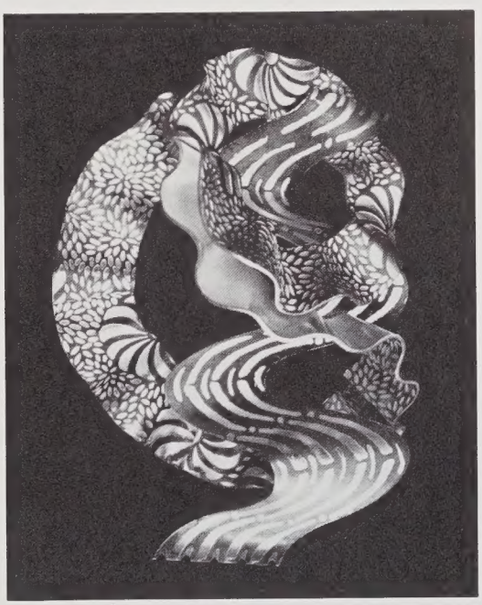
This problem can be eliminated by the use of exposures with the same transparency on the front and back of a plate that has been completely coated with emulsion. The etch then proceeds from both surfaces toward the middle. In order to use this method, the exposures have to be made with the transparency in perfect register. Otherwise the etched perforations would be misaligned from front to back. (The process and an easily constructed, portable spray etcher were presented by Linda Threadgill at the 1983 Metals Symposium in Yuma, Arizona. See *Suppliers*.)

## The Process

*Etching.* The transparency must have a completely "connected" pattern. For example, an etched "O" would become a round hole when the circular disk of metal dropped out of the center. Inattention to this problem can result in a large collection of unusable little scraps of metal and a greatly simplified pattern.

The brass plate can be coated, exposed, developed and etched using normal metal photoetching processes. Ammonium persulphate etching mordant is particularly suited to this technique, as it provides a clear, precise image that varies little from "front" to "back" of the plate. It is important to cover the emulsion-free "back" of the plate with transparent tape or contact paper that will

*Hanging On* brooch, sterling silver, brass, 2½ × 2 × ½"



*Gate III* brooch, sterling silver, brass, 3 × 2 × ½"

**Table of Element Composition**

| | *Cu | *Zn | *Ag | Melting Point (estimate) |
|---|---|---|---|---|
| **Copper Alloy #270** | 63.0–68.5 | Rem. | | 1710°F |
| **Copper Alloy #230** | 84.0–86.0 | Rem. | | 1880°F |
| **Sterling Silver** | 7.5 | | 92.5 | 1640°F |
| **Bond Alloy #270/silver** | 30.0 | 10.0 | 60.0 | 1240°F |
| **Bond Alloy #230/silver** | 29.0 | 8.0 | 63.0 | 1300°F |

*Approximate %

allow clear observation of the progress of the etch through the plate. (Special tape for this purpose can be obtained from Bill Seeley, Reactive Metals Studio, see *Suppliers*.) When the pattern is etched through, creating a satisfactory pierced image, the plate should be cleaned thoroughly with lacquer thinner, annealed, pickled and pumiced. This task must be accomplished with great care in supporting what is now a fragile screen of thin brass.

*Fusing.* A piece of silver of appropriate gauge (16 – 22 are easiest to work with), is cut to match the brass plate. Both brass and silver should be absolutely flat and clean. The etched brass plate is laid on the silver. Silver and brass are fluxed thoroughly. The sandwiched metal is heated slowly and evenly. If the brass begins to lift, it should be pressed back gently into contact with the silver, using the side of a solder pick. Where silver and brass meet, the edges will shimmer or flush like a solder join. Immediately after this fusion takes place, the brass will begin to sink into the silver surface. To avoid this, remove the flame immediately and move on to unfused areas until the whole piece is without bubbles or open edges.

Pickle and clean as usual. Overheated areas will have sunk in and become flooded with the new alloy formed in the fusion zone. Some such areas can be sanded to restore the pattern if the new alloy has only flowed over the brass without disturbing its form. If air bubbles are visible, the metal can be pierced, fluxed and reheated until it fuses.

## Experimentation

For the sake of consistency I have adopted the Carbondale vocabulary from "Introduction to Granulation," SIU, Carbondale (see *Bibliography*), to describe bonding characteristics in these experiments. These characteristics are: good readability at the fusion point, clean surfaces without reticulation or pitting and acceptable bond strength with small fillets.

The brass was etched with ferric chloride or ammonium persulphate. A natural gas/oxygen torch was the preferred method for heating in all cases, as it afforded a flexible and immediately observable means of controlling the process. Twenty-gauge (.032") silver was the base plate in all test pieces. Copper alloy #270 (yellow brass) and copper alloy #230 (red brass) were chosen for experimentation because of their qualities of workability and easy availability to the craftsman. Very flat yellow brass with an immaculate surface in suitable gauges is available from K&S Engineering (see *Suppliers*). They also supply the same material to most model and hobby shops.

### Copper Alloy #270

**A** .005" — *Etch:* Even and clean through the sheet. *Fusion:* Some movement and warping could be controlled with even heating and limited pressure with a solder pic. Good readability, clean surfaces, some variation in fillet sizes.

**B** .015" — *Etch:* Slightly uneven, with somewhat smaller image on back of sheet. *Fusion:* Etched sheet more stable when heated, good readability, clean surfaces and little variation in fillet size.

**C** .032" — *Etch:* Image on back of sheet unacceptably smaller with loss of detail. *Fusion:* Fusion with a substituted piece of manually pierced metal was very easy to control, exhibited good readability, clean surfaces and little variation in fillet size.

### Copper Alloy #230

**A** .005" — *Etch:* Even and clean through the sheet. *Fusion:* Some movement and warping, good readability, clean surfaces and less variation in fillet size than a brass of same gauge.

**B** .015" — *Etch:* Slightly uneven, with somewhat smaller image on back of sheet. *Fusion:* Etched sheet more stable when heated, good readability, clean surfaces and little variation in fillet size.

**C** .032" — *Etch:* Image on back of sheet unacceptably smaller with loss of detail. *Fusion:* Fusion with a substituted piece of manually pierced metal was very easy to control, exhibited good readability, clean surfaces and little variation in fillet size.

## Advantages and Disadvantages

Pieces of this fused material have been rolled, twisted, repoussed and chased with good results. The brass surface can be heat treated and otherwise patinaed to a wide range of colors. Due to the nature of the alloy produced at the interface of the two metals, one is limited to the use of low-temperature solder or cold connections in further construction. However, this limitation has had little influence on complexity or lack of it in pieces made with fused material.

Composition of the bond alloy is radically different from the laminates and may result in some weakness in certain structures. This has not been a problem in this experimentation, however.

Some very small spaces in the pattern flood with the bonding alloy which has a slightly different texture and color than the rest of the sterling silver. Rolling unifies the texture, so color difference is hardly detectable.

There is a definite size limitation with the torch fusing method. Laminations larger than four-inches square become very unwieldy due to movement of the perforated sheet caused by uneven heating.

There is limit to the "stretch" of the pattern that is determined by the thickness of the perforated sheets. The double-sided etching process produces cleanly perforated sheets and this makes it possible to etch thicker sheets, which extends workability. However, pattern distortion will increase as the material is "stretched" further. Very fine patterns will still be limited to thinner gauges, even

with a two-sided etch. Patterns that incorporate perforations of radically different size present problems in etching. Smaller spaces generally take longer to etch; meanwhile the larger areas will spread and lose detail. Selective "stopping out" with lacquer, nail polish or asphaltum during etching will eliminate this problem.

## Conclusions

The fusion-weld bonding of brass and silver does not quite fit the description of the process used in either mokume-gane or granulation. However, the results of energy dispersive x-ray analysis lead me to believe the phenomenon is more closely related to granulation than the heat/pressure induced results of mokume-gane. The existence of copper in both sterling silver and brass contributes to activity quite like the interpenetration of copper in the joining alloy of gold and silver granulation. The presence of zinc in the group probably lowers even further the temperature at which diffusion occurs. X-ray images of the fusion areas primarily show penetration of the silver layer by diffused atoms of copper. The edge of the silver layer on the other hand, remains relatively well-defined. Copper and zinc appear to be the active elements.

X-ray analysis also provides evidence that suggests the smaller amount of zinc in copper alloy #230 may be the reason for a more controllable fusion of that alloy with sterling silver. The new alloy forms between the two layers at a somewhat higher temperature and does not flow as easily or quickly. Working qualities of #230 are closer to those of sterling silver and so contribute to a more unified metal body.

Further experimentation will certainly yield more precision and variation in this process. Other metals (most notably alloys of gold and silver) with similar attributes present new avenues for technical exploration. Even more exciting to me are the possibilities this process suggests in terms of imagery and surface enrichment. They are as limitless as the number of artists interested in applying them to their own visual development.

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## Suppliers

Brass — K&S Engineering, 6917 West 59th St., Chicago, IL 60638

Photo Chemicals and Data Sheets — Thiokol/Dynachem, 3311 Boyinton Drive, Suite 380, Caroollton, TX 75006

Spray-etcher — Linda Threadgill, University of Wisconsin, Whitewater, WI 53190

Light and Drying Boxes — Eleanor Moty, "Photofabrication on Metal," from *Photography in the Crafts,* J. Fred Woell

Etching Tape — Reactive Metals Studio, P.O. Box 2591, Sedona, AZ 86336-M

## Acknowledgments


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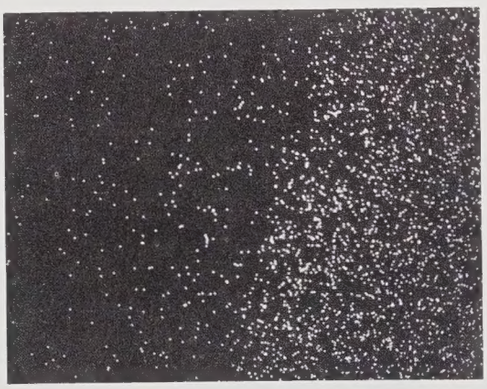
**Energy dispersive x-ray analysis of Copper Alloy #270.** X-rays have various energies. Heavier elements produce a greater variety of x-rays (for example: aluminum has very few, gold has several). The variety of x-rays is determined by the number of electrons in the atoms. In this analysis atoms are bombarded with electrons. When an electron in the atom is hit, it flies off and the element becomes unstable. In replacing this electron, an x-ray is given off. The photographic image in the analysis represents these events. X-rays of specific elements were recorded from a single fused specimen, so overlapping and diffusion could be observed.

Copper

Zinc



Silver

# METALLUM

## A SWEDISH METALSMITHING COOPERATIVE

*by B. Malin Gunnarsson*
*translated by Birgitta and Peter Thiers Sanitate*

Interior view of the Metallum gallery

It all started in the summer of 1981 with the offer of an empty shop in Stockholm's Hornsgatan section known as "Pukeln" (the Hump). In the immediate vicinity there were three other cooperatives: The Textile Group; a ceramics group called Kao-Lin; and a woodworking group called Lignum. Rumor also had it that another ceramics group Blås & Knåda (Blow and Knead) was even planning on moving to the area. The time seemed right for a metal cooperative to open as well.

After a mass of telephone calls and a huge amount of correspondence throughout the summer, by the time autumn arrived we were 27 in number. The shop, in a beautiful and newly renovated 18th-century building, needed some work and alteration in order for it to function as both a gallery and showroom for the group. Display cases, lighting and office equipment had to be installed and, in order for our insurance premium to be at an affordable level, a secure safe, alarm system and armored glass were also necessary.

We organized ourselves for "work days" when we did most of the necessary carpentry and painting. We investigated alternatives for our poster and exhibition invitations design and printing. Our logo was designed by Josephine Davidson and the shop's iron sign of the logo was made by Sven-Olof Sundberg. During the work days we got to know one another, formed our first board and registered the company.

On October 10, 1981 we had the opening of our first exhibition, a huge joint venture which showed the group's breadth and depth. We had many, many visitors, thanks on the one hand to an illustrated article in *Dagens Nyheter* (Sweden's biggest national daily newspaper) and on the other to the members' hard work putting up posters and sending out invitations.

Since then we have alternated with individual and joint exhibitions, with themes such as "egg cups," "jewelry" and most recently "hollow- and flatware." One reason for this last exhibition was that three members of the group Lena Björkman, Hubert Hydman and Joy Ljungquist had just completed their final year at art school and had produced their examination pieces in holloware.

The group has also exhibited at Stora Kopparberg's Museum in Falun, at the Rhöss Craftsmuseum in Gothenburg and at Delacarlia. In 1983 we held seven exhibits in all, including a group exhibit at Christmas, and in January of 1984 we showed the work of Ragnar Myrsmeden, a 95-year-old blacksmith, who made his first creation in 1903. We have also invited guests from abroad to show in our gallery, such as Eila Minkinen, a jeweler from Finland.

Our gallery is set up so that the first room is for exhibitions. The inner room is for permanent merchandise. We organized it this way from the beginning because we were afraid that during an exhibition of one person's work, other members could not sell. So we decided to provide the customer with a complete choice all the time.

The Metallum group has a very wide range of work, with the only common denominator being "metal," hence the name. We work in all phases of metalsmithing: jewelry, holloware, relief work and sculpture in varying materials and techniques. There is gold, silver, copper, brass, wrought iron, stainless steel, nickel silver, aluminum and titanium, and among the techniques used are: gem setting, stretching, raising, iron forging, weaving, etching, repousé, engraving, granulation, enameling and niello. All of us are craftsmen who don't use any industrial machines, only smaller tools, such as a dentist's drill or polishing machine. If we can't manage the work ourselves, we go to the industry, for example, for silver plating or anodizing.

Commitment to the group is as follows: Each member pays 4000 Swedish Crowns to join Metallum. This money is nonrefundable. (At first we charged about 1500 Crowns per person, but things were much more expensive than we could imagine, especially the security, so we had to take out a bank loan as well as buy a big safe on credit.) If a member wants to leave the group, the best time to do this is at our annual meeting in the spring. The gallery is run by the members, each putting in two weeks per year. We have found that our customers like the personal contact they get with someone who knows the craft and who can answer questions and explain how items were made. This seems to outweigh, so far, any lack of business experience any of us might have. The gallery takes 25% commission on sales, and the shop rental is paid quarterly by the members.

Beyond direct sales, various groups are in charge of such things as window display, exhibitions, customer register, bookkeeping and public relations. One result of the publicity group's work was Metallum's participation in the radio program "The Artists Speak." A version of our poster, in English, was also produced and distributed to hotels, museums and restaurants. Obviously, publicity is also each member's responsibility. We consider that cooperation with other similar groups in the area is most important. For example, we advertise every weekend, except for summer, in three newspapers in Stockholm with other groups and galleries of the Hump. And we

**Above :** Wolfgang Gessel, coffee set, sterling silver, final examination piece

1.Carlgoran Hemlin 2.Tore Svensson 3.Ninni Elmdahl 4.Lars Huber 5.Josefine Davidsson 6.Birgitta Sanitate 7.Kerstin Gustafsson 8.Jan Brunk 9.Lena Bjorkman 10.Joy Ljunquist 11.Torbjorn Testad 12.Marita Carlborg-Olson 13.Anders Olson 14.Wolfgang Gessl 15.B. Malin Gunnarsson 16.Staffan Nilsson 17.Hubert Hydman 18.Bo Parkvall 19.Sven Olof Sundberg

**Left:** B. Malin Gunnarsson, *Rain I,* engraved and etched sterling silver relief with gold balls; **Above:** Interior view of the Metallum gallery

have also put together a brochure as a guide to our area.

A craft-works jury keeps an eye on the technical quality of the work on sale, while the artistic aspect is each member's own responsibility. Most of the items sold by the gallery are unique, rather than on order. However, if a customer wishes to commission a piece, he can refer to a members' register, which gives all relevant information on every member's work, both visually and in text.

The ages of the members run between just over 20 to a little over 40. Some have had studios and workshops for many years, some are straight out of school. Several of the group share workshops with one another — a way of reducing the costs, avoiding some of the isolation that is so often a part of work of this kind and a means of sharing tools. For example, the stakes needed when shaping a pitcher or vase of a complicated form are varied and expensive. It seems that it is practically impossible for a metalsmith, as is the case with many creative occupations, to eke out a living in his own studio. Many of us take extra jobs, working as shop assistants, waitresses, teachers, hospital orderlies, home helps or just working for older established craftsmen in their studios.

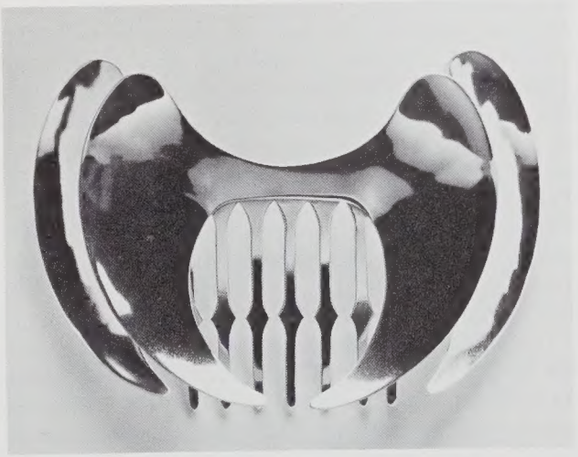
Some members market their work only through Metallum. Others are members of other associations too, such as the Craftsmen or The Association of Contemporary Swedish Silver. Others sell from their own workshops or through galleries in other towns.

Our first years have been both stimulating and difficult. Difficult because it does take time to build up a clientele and to find

**Top:** Staffen Nilsson, two rings, sterling silver; **Above:** Dan Göran Gustavsson, *Chairs*, sterling silver; **Right:** Emma Rosendahl, sculpture, copper

a workable routine for all to follow. Another initial difficulty has been reaching as many people as possible, considering the limited funds available. At the same time it has been a challenge to overcome these obstacles together and not lose momentum. Then everything happens at the same time — a fine exhibition which gets both recognition and financial results, participation in a radio program, press coverage, and suddenly things are rolling.

It has been stimulating and rewarding to work together in a group, to share responsibility, to share the fruits of success. We have gained a great deal by getting to know each other rather than sitting in splendid isolation in our own studios. One is carried along by mutual development, one is as happy about others' successes as one is about one's own and that is probably the best foundation upon which the future can be built. ■



**Above :** Marita Carlborg-Olsson, combo and two rings, sterling silver; **Right:** Ninni Elmdahl, *Torso*, nickel, silver and iron

*The following text was written by Vannoccio Biringuccio, an Italian master craftsman in smelting and metalworking, born in Siena in 1480. Its publication date of 1540 predates Cellini's autobiography, by about 20 years. And while Cellini makes no mention of Biringuccio in his own work, the omission is probably due to Cellini's own ego and not necessarily to the merit of the text. Pirotechnia contains 10 "books", each consisting of a number of chapters. It deals only in part with metallurgy. Vittoria Cozzi-Olivetti has undertaken this new translation of the text as she believes that Biringuccio does deserve a place on the metalsmith's bookshelf along with Cellini. ". . .the whole work has the air of a man speaking informally to friends about his chosen work. Biringuccio's blunt, direct speech is that of the practical man whose life has been passed in the active exercise of his craft; he is not interested in grammatical accuracies or in literary niceties. Eager, alert, possessed of an unquenchable curiosity and sharp powers of observation, he has traveled, worked, and experimented unceasingly, and now in his old age is intent on sharing the fruits of his experience with his friends and fellow workers."[1] The excerpt from Biringuccio's treatise reproduced here is from the ninth book, chapter four, entitled "Concerning the art of the goldsmith", translated by Vittoria Cozzi-Olivetti from the original text kept at the Marciana Library, Venice, Italy.*

# PIROTECHNIA

*by Vannoccio Biringuccio*
*translated by*
*Vittoria Cozzi-Olivetti*

In discussing the goldsmith's art it is evident that this is an art requiring superior ability, since an unlimited mastery of more than one skill is an absolute necessity for a goldsmith to be considered a good master. The variety of works that come to his hands is indeed infinite. Moreover, those who work in gold and silver must surpass, both in theory and in practice, all other artisans just as much as silver and gold surpass in nobility all other metals. Therefore, to be a good designer is of primary importance, for design is the key which opens the door not only to goldsmiths but to all craftsmen. It is also necessary to have a good knowledge of casting, a good control of each sort of hammer, of chasing and repoussé tools, of burins for engraving and also of files and chisels. Furthermore, the goldsmith must possess particular secrets expedient to the art — secrets which partake of alchemy such as how to soften gold as it becomes hard and brittle, how to restore the color it lacks, now to solder, enamel, niello, blanch, gild — and must have a knowledge of an infinity of necessary things. But above all, whoever wants to excel in this art must be extremely patient in his work: he must know how to mould and then proceed with casting, with files, hammers, chisels or other devices in order to bring his gold or silver work to completion. He needs also to be a good judge of gems and to know how to recognize their specific qualities, virtues or faults, to identify the false from the precious ones, either set or unmounted, as the need arises, and to determine their value either in buying or selling or to satisfy a demand for his appraisal. He needs not only to master the technique of melting, but also the methods of assaying, smelting, refining and purifying gold[2] and similar things and many more. It would be impossible for me to discuss them all since, as I told you, a goldsmith must be able to grasp and control as many works as are given to him. Therefore, those who can be regarded as good master goldsmiths are rare, for some specialize in engraving, others in smithing, others in stone mounting and setting and ring-making, each one of these practices being part of the goldsmith's art. Whoever is skilled in most of these, most deserves to be acclaimed a good master.

The goldsmith's common practice (as you might have seen) is to melt in a little furnace with small single hand bellows and in a little crucible of heat-resistant earthenware. In brief, they cast all metals in cuttlebone after having moulded, in each of the two halves, the object they want to reproduce. Then they carefully bring the gold object to completion with files or specially suited little hammers (depending on the particular piece). To sum it up, there are three things which in this art are highly regarded (in addition to the general ones): The first is engraving and making figures in full or bas-relief; the other is raising well a silver or gold vessel so that it is solid and well formed; the third is to set rightly and pleasingly a gem in a ring or other setting and to know how to mount it well so as to reveal and, if possible, even enchance its virtues. In order to master these skills well, goldsmiths must acquire them either through great inborn talent or long practice.

A woodcut from the original 16th century edition of *Pirotechnia* showing an assaying laboratory with balances, muffle furnace for cupeling and an ingot mold

But, with all this, I do not want to miss telling you a few things about goldsmithing (which are kept from ordinary people almost as secrets) so that you may know these as well. First the method of softening gold when it can no longer withstand the hammer blows because of some trace of lead or something else that it might have picked up. It is melted in a crucible and sprinkled over with crushed glass or a bit of sal alkali with wax, or three or four pinches of crushed sublimate and afterwards heated well. If the piece still lacks its yellow color, this can be restored by smearing it with verdigris and sal ammoniac tempered with urine or vinegar. It is heated over charcoal, and as soon as it is really hot it is thrown into urine to scale it.[3] It is also washed by boiling it in water with crushed yellow sulphur; such a method is used more with gilded silver than with gold pieces. Another way to restore the yellow color consists in boiling the piece in parings, or shall I say, filings of bull's or ram's horns or chopped straw or with the smoke of feathers or of the above-mentioned horns. But these devices are very short-lived. Similarly, when the silver is crude and coarse, it is softened with mercury mixed with leached wood ashes or by melting it with saltpeter, tartar, crushed glass or sal alkali and many other things concocted and discovered by alchemists. Silver is scaled and blanched by boiling it with tartar and common salt, and if you choose to do so, with a considerable amount of rock alum.

Soldering is also essential to this art because it is used quite often and requires great care. First it must be ascertained that the soldier is not harder than the piece to be soldered lest the work, when heated, melt before the solder. It is necessary then to make the solder soft by corrupting it, lowering the carat or alloys through the addition of silver, brass or copper. Fine silver and fine gold, however, brought together with a little borax or verdigris can be joined with no extra solder. To solder, a special little furnace is needed, or else a chamber of coals, in the guise of a small furnace, can be arranged on the forge. The solder consists of fine silver, half brass, one-fourth of burned copper; it is broken up, cut in small pieces, mixed with a little borax and placed where it is supposed to flow on the object. This is bound, picked up with tongs and set over red-hot charcoal. By pumping quite a lot of air with little bellows the fire is increased until the solder is seen flowing all along the seam. The piece is then immediately removed and let cool. In this way each work broken or made in pieces is soldered well into one.

Works are also ornamented with nielloed intaglios and grooves. Niello consists of one part of fine silver, two parts of copper, three of pure lead. An earthenware flask with a long and narrow neck is filled halfway with ground sulphur over which the above-mentioned molten metals are poured. The flask opening is immediately sealed with earth and the flask is shaken well. When cold, the flask is broken, the metals are taken out, then cleaned, washed and finally ground. They are used for filling in the hollows in the objects as desired. Blowing with little bellows over a certain amount of wood flames in a small furnace made of large chunks of coal, the metal mixture is enlivened and made to run thoroughly by prodding and pressing it [into the hollows T.N.] with a little stick of wood or iron rod. When the niello has run, the piece is removed from the fire and let cool. Then the excess is filed off, the niello is polished with a reed and fine pumice and brought to a beautiful luster by rubbing it with tripoli.

Enameling is also part of this art. But few from this region are skilled in it because they are dependent on the enamels and the piece they want to enamel. In fact, each sort of gold and silver or copper requires enamels suited to its nature, otherwise it does not respond. In our region, craftsmen do not know how to prepare enamels and so buy them ready-made. If they chance upon good ones, the work turns out good. If not, these local craftsmen, to avoid difficulties, make do with whatever is available to them. Now enamels are prepared first by grinding them fine and washing them several times. Each different color is kept

Goldbeater at work on a plate of gold and silver

separate in a little clean glazed bowl with a good amount of water free from impurities. Then some of the desired colors are picked up with a copper or iron style somewhat flattened at its point and spread over the work sort of thickly, filling all depressions. The water is then blotted out by pressing with some cotton or absorbent paper. The work, with all its parts to be enameled, covered and prepared in such manner, is placed over a charcoal fire in a clay furnace made for this purpose and equipped with a little muffler similar to those for assaying, or in a stove made of big chunks of coals as for soldering or niello. Blowing with little bellows a bran fire is kept going until the enamel is well fused. The excess is removed with a grinding wheel and, if the work is flat, it is evened out. Then the enamel is returned to the fire to vitrify it and bring out its luster again so as to reveal the beauty and charm of each color as it was set in its proper place.

Essential to this art is also a kind of work called filigree, which is actually achieved with gold or silver wires and by attaching spraywork, fruit or seeds or similar things on thick foil. First the wires are drawn through the drawplate to make the stems. Then the leaves are stamped over a piece of lead. The seeds, made of the same wire, are cut, chopped and melted in a crucible with a layer of ashes and removed when cold. These things are selected and arranged according to the design and attached to their proper place with a paste made of quince seeds or gum arabic. Finally the work is placed over one of the previously described furnaces with borax and soft gold or silver solder. The solder is made to flow with a fire of bran or dry alder twigs. Undoubtedly, whoever works in this appliqué technique and is skilled in it easily achieves beautiful results and such that they bewilder anybody who sees them.

Aside from the manual work the [goldsmith's T.N.] art has much in common with alchemy because so often it makes appear what is not there, as is evident in gem setting, in enhancing the color of gold, in blanching silver and also in gilding things which by true nature are silver, brass or copper and appear to be of gold. Moreover, things are made to look as if of gold and fine silver when they are not. To reach such an effect two ways are followed: one using hammered gold leaf layed over a piece previously activated with quicksilver, the other combining fine gold with mercury and spreading it with a copper rod over the piece. The mercury, applied over the work by either method, is made to evaporate through heat leaving the gold. If the piece is gold, it is quenched in urine. If it is silver on copper or brass, it is thrown into oil and heated with a bran fire.

Each piece of gold or silver, as well as copper, is worked cold or hot, provided discretion is used in annealing the piece after each hammering or when necessary.

I think I have told you enough about the general procedure with gold or silver. Whatever else is necessary depends entirely on talent and practice.

But a most ingenious and beautiful thing, which should certainly not go unmentioned, is the discovery of making the foils that are placed under gems to enhance their beauty by revealing their peculiarity of brilliance and color.[4] This composition was discovered through the observation of the tempering process, but it also employs the virtue of high heat and various fumes used for this purpose, in addition to the basic mixture and composition of the material.

**Notes**

**1** Remark from MIT Press 1942 English translation of the Biringuccio text, made by Cyril Stanley Smith and Martha Teach Gnudi.

**2** Purifying gold: in the Italian text cimentare, to purify or assay gold by means of a mixture called cimento, or to test gold with a touchstone.

**3** To scale it: removing the build-up of silver from the surface revealing a richer gold underlay.

**4** "These foils were necessitated by the old methods of cutting stones which did not cause total internal reflection of the incident light. They were made of various alloys of gold, silver and copper, hammered very thin, carefully cleaned and heated to develop temper colors. Cellini (Trattati della oreficeria e della scultura) describes their production in detail and lists the best alloys for each color." The Pyrotechnia of Vannoccio Biringuccio, the MIT Press, translated by Cyril Stanley Smith and Martha Teach Gnudi, 1942. ■

*Vittoria Cozzi-Olivetti is an Italian metalsmith and translator living in California.*

# A METALSMITH'S GUIDE TO ROME

*by Susan R. Ewing*
*photographs by*
*Gerardo Brown-Manrique*

Etruscan Cista, bronze

Rome. Truly the eternal city, where every monument reflects simultaneously the past and the present. As Goethe so aptly states in his *Italian Journey*, "The very site of the city takes one back to the time of its foundation." As a living museum, the vastness of its collections is overwhelming, even to the initiated visitor. For the metalsmith, Rome is an adventure, testing all of one's senses and instincts of discovery.

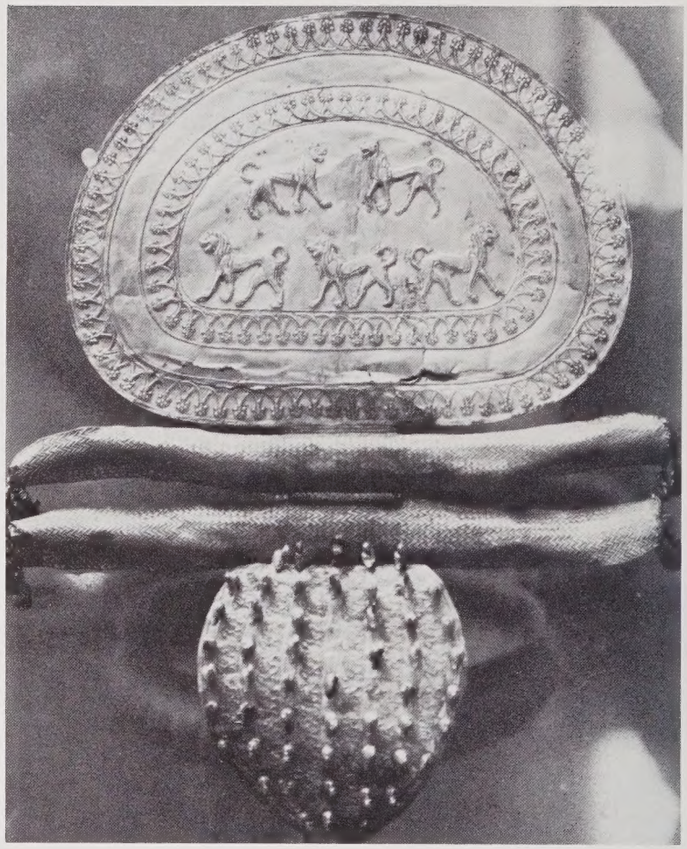
**Palatine Hill** is the legendary site of the founding of Rome. It is here where the twins, Romulus and Remus, were discovered, suckled by a she-wolf, and it is here where in 753 B.C. Romulus ploughed the boundary lines of Rome, becoming the first king of one of the most powerful cities in history. The layered vestiges of the past illustrate the city's development from an agricultural settlement comprised of Iron Age huts to a city of monumental architecture sheathed in marble and bronze, the seat of the Republic, the Empire and, more recently, the Papacy.

## MUSEO NAZIONALE DI VILLA GIULIA

Within Pope Julius III's 16th-century country residence, an outstanding example of late Renaissance architecture, is housed a vast collection of Etruscan art. The Museo Nazionale di Villa Giulia is easily accessible — only 15 minutes from Via del Corso, north on Bus 95 — and as is typical of Italian museums, it is open from 9:00 A.M. to 2:00 P.M., closed Mondays. Photography is permitted without flash or tripod.

Knowledge of the Etruscans, the precursors of Roman culture, is gained almost exclusively from their tombs and the objects found within. Nearly all of the Villa Giulia collection comes from the necropolises of southern Etruria, that is, Vulci, Bisenzio, Cerveteri, Palestrina, Tarquinia, and Veio. Rooms 1–4 reveal the remarkable inventive forms of 8th-century to 5th-century B.C. bronze vessels and fibulae, characteristic of the superb skills and craftsmanship of the Vulci metalsmiths. Deserving of special attention are the large biconical funerary urns and wine flasks, and especially the 7th-century B.C. "hut urn," which so sensitively abstracts architecture into a sculptural bronze object. Room 5 features ceramics and bronzes from Bisenzio, including a playful bronze incense burner in the form of a chariot laden with stylized figures and animals.

Continuing through the second floor walkway, towards rooms 19–22, one will discover several unidentified early bronzes, including cast pitchers and small abstract bronze figures. The culmination of this trek is the "Gold Room," Room 22. To enter here, a passport must be presented to the guard. A driver's license or student identification card will not suffice. Visits are limited to 10 minutes and photography is prohibited. This is a rather broad collection with examples of Minoan gems from 1400 B.C., Roman, Hellinistic, pre-Columbian jewelry, and several impressive 19th-century Castellani reproductions. After viewing all this gold, be certain not to overlook the much-published 7th-century B.C. gold granulated brooches from the Bernardini and Barberini tombs of Palestrina, located in Room 31.

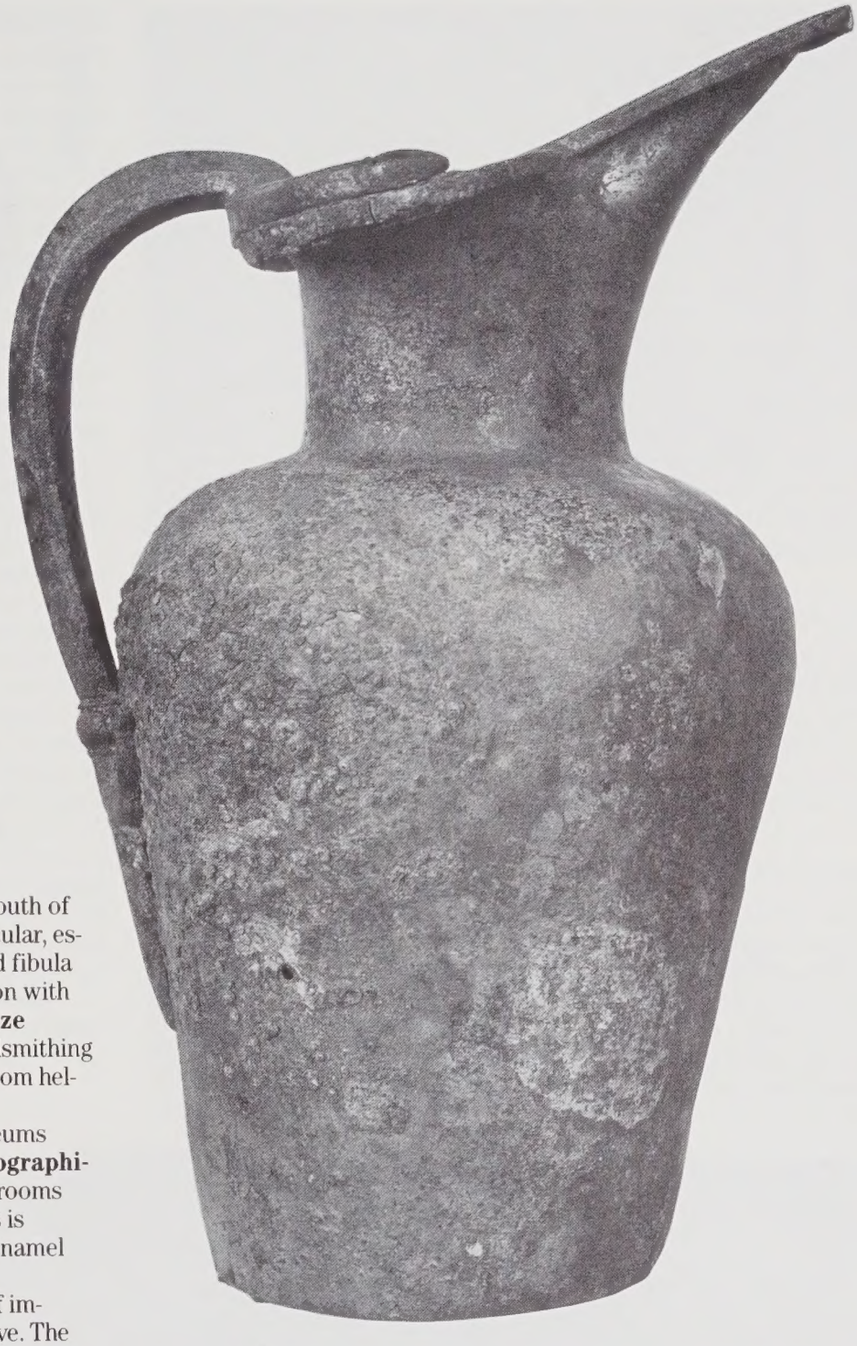


**Above:** Regolini-Galassi Fibula, gold, 7th. century Etruscan, *Vatican, Museo Gregoriana;* **Below:** *Museo Nazionale di Villa Giulia,* houses Etruscan antiquities; **Bottom:** Etruscan Patera, bronze

## CITTA DEL VATICANO

The Vatican City, with the pope as its ruler, is an independent sovereign state within Rome. The walls surrounding the Vatican contain not only St. Peter's Basilica but also the Vatican museums, which occupy part of the papal palace complex. Since these museums also close at 2:00 P.M., plan your itinerary to visit them in the morning, the basilica in the afternoon.

The **Etruscan Museum** (Museo Gregoriano Etrusco) is of foremost interest to the metalsmith with its Room of the Regolini-Galassi Tomb, Room of Bronzes and Room of Gold (Sala di Ori). The **Room of Gold** is presently closed to the public; however, it is possible to view the Etruscan and Roman jewelry by making a request at the information booth at the museum's entrance on Viale Vaticano. A one-half hour visit is allotted and photography is permitted. This is a small collection but worth the extra effort to see the delicate funerary diadems and hollow-formed granulated earrings.
The **Regolini-Galassi Room** contains treasures from excava-



tions of a 7th-century B.C. Etruscan tomb in the necropoli south of Cerveteri. The bronze, ceramic and gold objects are spectacular, especially the massive repoussé and profusely granulated gold fibula and also the enormous raised and embossed bronze cauldron with six griffins projecting over the rim. Objects within the **Bronze Room** comprise an impressive collection of Etruscan metalsmithing in their form, scale and craftsmanship of articles, ranging from helmets and bosses to candelabra, pitchers and urns.

Besides the Museo Gregoriano, there are 27 other museums within the Vatican complex. Of direct interest are the **Ethnographical Collection,** which includes jewelry, and the numerous rooms of the Vatican Library. Among these, the Room of Addresses is especially significant because of its 13th-century Limoges enamel series of placques and reliquaries.

Within the **Portico of St. Peter's Basilica,** five sets of immense bronze doors preclude passage into the basilica's nave. The central doors embody the eclectic Renaissance spirit through an assemblage of religious, secular and mythological scenes in a series of panels and borders by Antonio Averulino "Filarete," dating 1445. Compare these to the portal furthest to the left, metalsmith/sculptor Giacomo Manzu's contemporary **Doors of Death,** 1964. Within the basilica, metal abounds: Renaissance brass candelabra, massive brass door handles, and not least of all, Bernini's colossal bronze *baldacchino* over the high altar. It is an incredible feat of bronze casting, which, due to a shortage of bronze in the 1600s, was made possible by stripping the bronze-covered dome of the Pantheon. Directly behind this altar, the apse is dramatically alive with yet another Bernini bronze, **St. Peter's Pulpit,** surrounded by ethereal bronze clouds, saints and angels.

**St. Peter's Treasury** offers an interesting chronological survey of the church's religious artifacts, such as chalices, reliquaries, vestments and illuminated manuscripts, mounted into an impressive exhibition. The 6th-century *Vatican Cross* and the 19th-century Castellani ivory, gold and micromosaic bookcover, *Canone dei Vescovi,* are exceptional and should not be missed. The treasury is accessible from the left aisle and is open daily, including Mondays.

Below the basilica lie the grottoes, the traditional burial site of the popes; entrance is also gained from the nave near the high altar. Within the chambers are numerous examples of traditional ironwork.

**Above left:** Biconical Funerary Urn and Flask from Vulci, bronze, 9th.—8th. century B.C., *Museo Nazionale di Villa Giulia;* **Top:** Etruscan Oinochoe, bronze; **Above:** Biblioteca dell'Instituto Nazionale di Archeologia e Storia dell'Arte, Palazzo Venezia

## ESPOSIZIONE UNIVERSALE ROMA — E.U.R.

One museum that a serious metalsmith cannot overlook in this quest for metalwork is the **Museo dell'alto Medievo,** situated within Mussolini's grandiose project. E.U.R. — a cluster of exhibits dedicated to the "glory of Rome," only 10 minutes from the main train and bus station, Stazione Termini (Metro Line B to Marconi). It is quite unfortunate, but no photography is permitted here. This collection features exquisite jewelry and utilitarian funerary objects of Imperial Rome, 5th century A.D., through medieval times, 11th century A.D. Besides the intrinsic beauty of the early champlevé gold disc brooches, gold crossbar fibulae, and the 11th-century embossed silver belt buckle, one is keenly aware of the cross-currents of influences on the lives of the Romans, especially the Celtic and Byzantine influences, all chronicled within their jewelry.

There are three additional museums within the E.U.R. complex: Museo della Cività Romana (Roman civilization), Museo Luigi Pigorini (prehistory), and Museo dell'Arte Tradizioni e Populari (dedicated to traditional folk arts). These are of interest if you have a strong curiosity about Roman culture and history.

## PALAZZO VENEZIA

The national art and archaeological library, **Biblioteca dell'Istituto Nazionale di Archeologia e Storia dell Arte,** located in Palazzo Venezia, offers the metalsmith vast resources for scholarly pursuit. The palace's museum houses some notable examples of Renaissance and Baroque metalwork, especially the German holloware from Nuremburg and Augsburg.

## SANT' ELIGIO DEGLI OREFICI

Since 1508 this church of the patron saint of goldsmiths, Sant' Eligio, has been the seat of the "University of Gold- and Silversmiths" of Rome. Within are housed the archives of gold- and silversmithing. The church, designed by Raphael, is open daily except Wednesdays and Saturdays, from 10:15 A.M. to noon, and for mass Sundays at 11:00 A.M. It is easily accessible off of the Via Giulia, near the Palazzo Farnese.

## JEWELRY AND HOLLOWARE

Though there is a plethora of retail outlets, Rome is not a jewelry or holloware production center. Rather, Milan is generally regarded as the design and manufacturing center for holloware and high fashion or art jewelry, while Vicenza, Valencia Po, and the Florence/Arrezzo areas dominate the general jewelry trade. Most of Rome's interesting commercial shops are in close proximity to each other, in or near the **Piazza di Spagna,** the popular fashion district of Rome. On Via del Corso there are three shops which sell smithed holloware: **Ansuini, Serra** and **Masenza.** Masenza displays a very fine contemporary five-piece silver coffee service by Milanese designers Franco Albini and Franca Helg and a superb tall, raised silver vase by Carlo Lorenzetti, also of Milan. Serra and Ansuini exhibit high quality, but traditional, holloware, with Ansuini actually hand-producing English classics. Ansuini has another store, at Corso Vittorio Emanuele 151, which exhibits a fine collection of authentic 17th- to 19th-century English holloware by such silversmiths as William Clark and Paul Storr.

From the Piazza di Spagna at Vicolo del Bottino 8A, fourth generation master gold- and silversmith **Aldo Vitali** perpetuates his family's tradition in Rome's oldest working shop. Here he designs and produces holloware for such firms as Bulgari, Tiffany, Cartier and Steuben. Trained, too, in architecture, art and design at the University of Rome and as one of four honored members of the "University of Goldsmiths" of the Church of Sant' Eligio degli Orefici, Vitali offers rare insights into the tradition of silversmithing. Metalsmiths are welcome to visit the shop by appointment; telephone (06) 6794236.

Jewelry in Rome plays to a wealthy, international clientele which predictably buys beautifully crafted, gem-oriented designs. **Bulgari** and **Buccellati,** both on Via Condotti, and **Domenico Petochi,** Piazza di Spagna 23, are premier purveyors to this investment-oriented market. The Petochi firm does produce its jewelry in Rome. For an appointment with Mr. Petochi, telephone 6790635.

Though not surprising, Rome has a multitude of liturgical metal "galleries" which specialize in supplying the necessary ecclesiastical accessories. The greatest number of these are massed around

Raised bowl from Vulci, bronze, 7th century B.C., *Museo Nazionale di Villa Giulia*

the Pantheon. **F. Braggio & Figli,** Via di S. Chiara 39, exhibits traditional, well-crafted chalices with married metals, repoussé and enameling. **Giamperi,** Via de Cestari 39, offers articles which are mostly cast or lathe-turned.

Exploring Rome's intricate network of winding streets reveals a profusion of tiny artisans shops and antique dealers. **Via del Babuino** and **Via dei Coronari** are crowded with antique shops, many with jewelry and intriguing chased and enameled silver icons and book covers. In this area, a shop at Via della Maddalena 45, **Boncompagni e Sturni,** specializes in Art Nouveau and Art Deco jewelry and holloware, such as a four-piece, 800-silver coffee service smithed in Milan in 1925. Antique ethnological jewelry from Africa, India and the Near East is sold in a small gallery, **AKKA,** Via Pié di Marmo 13/14, and at **Societa' del Brago,** Via del Lavatore 28.

## SUPPLIES

If you have the opportunity to work in Rome, be aware that sterling silver is quite difficult to obtain since most Italian production is in 800-silver. **Lefevre,** Via del Pegrino 99, is a major precious metal supplier. For tools and supplies, try **Astucci Angelo Turrichia** at Via Monte Briano 84 (an obscure but amply stocked store for both jewelers and metalsmiths, located near the Ponte Umberto I). General business hours in Rome are quite different from those in the United States: 9:00 A.M. to 1:00 P.M., then 3:30 to 7:30 P.M. are typical.

Once you have exhausted Rome, or vice versa, consider a day excursion to one of the Etruscan towns to visit the archaeological museums and excavated necropolises. **Cerveteri, Palestrina, Tarquinia** and **Vulci** are each located within about an hour of Rome and are accessible by local train from Stazione Termini. Or perhaps you would prefer to walk through the 4th-century B.C. remains of the Roman port town of **Ostia Antica,** just 30 minutes from Stazione Termini by Metro. Bus excursions to these environs of Rome are available from several of the tourist offices in the Piazza della Republica area.

By wandering these grounds once traversed by Julius Caesar and Constantine, one gains a sense of appreciation for Rome's assimilation of ideas from other cultures. We begin to see an absorption of the monuments and art of the ancient past into that of the present, as with the extraordinary bronze doors of the *Roman Forum's Curia,* which now complete the entrance of San Giovanni in Laterano Cathedral. Do not neglect the Titians, Caravaggios and Berninis of the Borghese Museum or the Capitoline Museum's *Dying Gaul* with his Celtic torc, and the late 6th-century B.C. Etruscan bronze *She-Wolf,* historically symbolic of the founding of Rome. As each repeated visit to a museum develops one's sensitivity and understanding, similarly each encounter with Rome will reveal new treasures and insights. ■

*Many thanks to Gerardo Brown-Manrique and Sibylle Ulsamer for their generous assistance.*

*Susan Ewing teaches jewelry design and metalsmithing at Miami University in Oxford, Ohio and lived in Europe during the past academic year.*

**Top left:** Teapot designed by Franco Albani and Franca Helg at *Masenza,* Via del Corso 410; **Top:** The Dying Gaul (detail), Roman marble, 3rd century B.C., *Palazzo Nuovo, Musei Capitolini;* **Center:** Ecclesiastical Chalices, *F. Braggio e Figli,* Via di S. chiara 39; **Above:** Regolini-Galassi Cauldron, bronze, 7th century Etruscan, *Vatican, Museo Gregoriano*

# EXHIBITION REVIEWS

**Christophe Burger**
Elaine Pottery Gallery, San Francisco, CA
August 21–September 15, 1984
by Carrie Adell

Christophe Burger came to California from France to produce a collection of jewelry for exhibit at the Elaine Potter Gallery. He wished to avoid the hassles of customs, and he was interested in the challenge of creating a collection in another country, in another goldsmith's studio, in a very limited time—less than a month.

I first viewed the work when it was delivered to the gallery. It was laid out on a table. I could pick up each piece, try it on. (All were wearable, all carefully made.) As my eyes wandered over the pieces, I looked for the creative process, the sequence of experiences, the begetting of new images from new ideas.

My attention was drawn to one pendant in a group of related pieces, each with a bannerlike form. This must be the first in the series, I concluded. The pendant tapered from left to right. My eyes sought the connection between the freely composed tip of the banner form, undulating on the right, and the rest of the banner, tightly constrained by the framing bars of a strong 90° angle on the lower left. It appeared that the piece grew from the right side, yet I was reading it from left to right. The first process in its design must have been Christophe Burger picking up some triangular and curved, roller-printed scraps of silver left by the studio's owner. I could imagine him fooling around with these scraps, arranging and rearranging them to find an interesting image, a point of departure. I remembered pushing around geometric paper shapes in my first experience of collage in high school. I got the feeling from the work that Burger would be a playful person, open-ended in his explorations, yet disciplined.

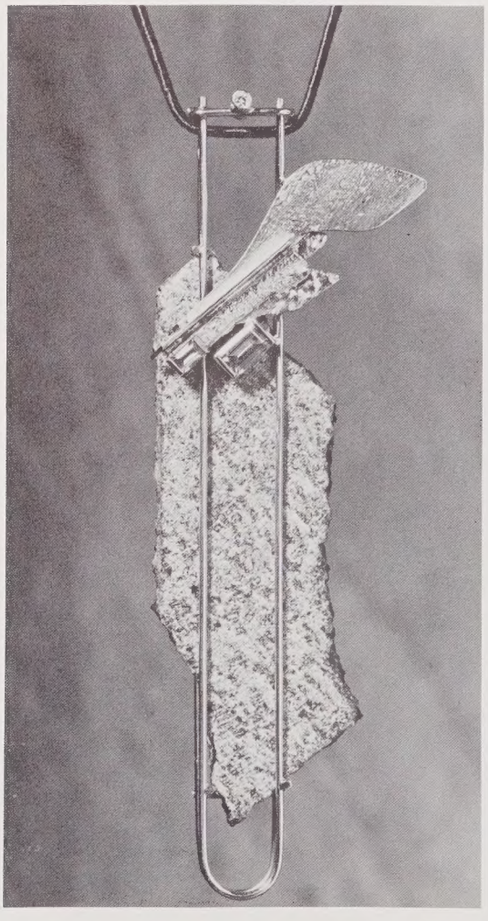
One clue was his ability to complete the collection. There were 18 pieces of jewelry produced in 14 days. The second clue was the skill with which Burger brought together the disparate elements of the aforementioned pendant into an organized yet lively miniature collage. Here the layered assemblies were of soldered and riveted precious metals and other hard materials, rather than of paper, fabric or fibers. Here, too, I found the sense of adventure, of spontaneity, of painterliness and, mostly, the evidences of process, which makes collage so appealing esthetically.

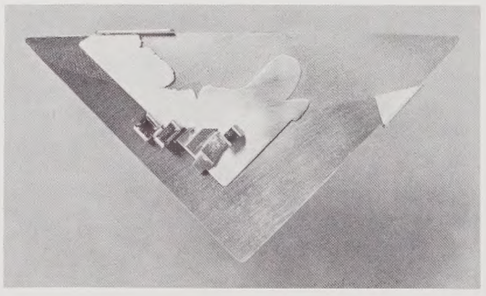
The image the artist developed in that first pendant was elegantly refined in several succeeding variations, using other "found" elements, as well as those of his own fabrication. Each of the roughly triangular pieces is organized within two hard-edged sides, opened to the right or upward. The third side is freely expressed by a ragged edge, a softly organic fold, a series of saw-cut striations, an unexpected material. Here and there within the order and discipline of the various triangles appears a whisper of disorder, a hint of disruption, a discontinuity in a highly structured field.. (I wonder if he takes time to kick up his heels during periods of intense productivity?)

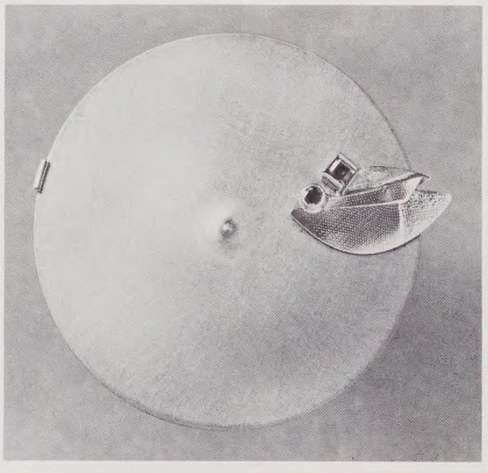
Beyond the expected 18k gold, silver, diamonds and other gemstones, Burger uses carved granite, zinc and screen-masked and flame-patterned titanium. The softly-colored blues and grays of these materials echo the range of gray values produced by the many screen-patterned silver surfaces.

I found that Christophe Burger likes to use certain visual elements in almost every piece, whether as another point of departure, a constraint in which to design or for a sense of completion. All the pieces contained two strong linear elements, often a kind of frame. In each jewel the eye moved from left to right and the composition was stabilized by a circular, or nearly circular, gemstone. Those pieces without gemstones had round rivets or circles that were roller-printed or flame-colored through a circular grid.

Christophe Burger is a dedicated "do-er." He enjoys surprising the viewer with the unexpected use of unusual materials. His juxtapositions of rough and refined surfaces are mutually enhancing. Reviewing the installation of Burger's work brought yet another surprise. In addition to the well-arranged vertical cases full of jewelry were six small sculptures that he had made in the two days between our last meeting and the opening of his show. Two boulders, fist- and head-sized, their cord wrappings with residues of raised lines of sandblasting process on their surfaces recalled spare Japanese images. The other four objects were related in materials and in their generally high-tech look, each varied from the others in nuance and visual direction, all demonstrating once again the virtuosity with which Christophe Burger celebrates living, his economy of organization, clarity of image, crispness of style and his process of creativity. ■







**Far left:** *Pendant*, 18k gold, rusted iron, diamond, ruby, 16cm l.; **Above left:** *Brooch*, oxydized steel, 18k gold, sapphire, aquamarine, amethyst, 7cm w.; **Left:** *Brooch*, oxydized steel, 18k white gold, sapphire, emerald, 5cm d.

**Stanley Lechtzin, Vernon Reed**
The Works Gallery, Philadelphia, PA
May 2–June 3, 1984
by Vickie Sedman

Recently The Works Gallery held concurrent exhibitions featuring new work by Stanley Lechtzin and Vernon Reed. Although scheduling the two together was coincidental it provided an exciting and interesting exhibition. Lechtzin and Reed are both pioneers who have tailored technology to meet their conceptual needs. The fact that their work is so different, both in esthetic and conceptual concerns, is the very reason that simultaneous viewing proved stimulating and thought-provoking.

In recent years Stanley Lechtzin has continued to grow and evolve as an artist, although the basic format of his work has not radically changed. What I find most significant about this man and his work is that he has made a whole generation of goldsmiths conscious of the artistic possibilities of 20th-century technology. Our technological society has given artists incredible freedom to express themselves. Lechtzin has fused the electrochemical process of electroforming with organically conceived forms that are bold, dramatic and extremely personal. Each and every piece makes a statement which reflects the intensity of his personal vision and says as much about the artist as the person who would wear it. One cannot help but admire work which represents the mark of a real individual.

The pieces, though large in scale, are extremely lightweight and wearable. The work has a sensuous linear arrangement that is reminiscent of Art Nouveau, yet the structural and sculptural aspects seem to be Lechtzin's primary concern. In many of the pieces he does not enclose the entire form, thus exposing the internal structure of the piece. The interiors of these pieces are matte in finish and emphasize the sculptural quality of the work.

Lechtzin uses semiprecious stones, crystals and pearls as either accents or focal points in the work. Sometimes they are used to draw attention to an opening or an interior form in his structures. For example, in Torque #70E, a crystal is suspended in a concave form, reminiscent of a stalagmite in a cave. Pearls are used on a ridge to highlight a slight opening.

Lechtzin's pieces are grown in an electrolytic solution. The process is analogous to numerous growth processes observed in nature and is a source of stimulation which has great meaning for him. His pieces directly reflect and suggest growth processes as they direct your eye through space, flowing, tapering and changing direction. His use of texture also resembles growth patterns; in many of the pieces the surfaces are smooth and passive, contrasted by very active and organic sections. The surfaces flow, twist and turn, establishing an integral relationship between surface and form. In the most recent work Lechtzin utilizes both black nickel and 24k gold finishes. The combination of these two metals adds contrast and additional drama to the work.

The overall impression is that Lechtzin's work represents an artistic integration of process and concept, form and function. I think Lechtzin has been and will remain an important contributor to the field.

Vernon Reed, also a pioneer in his use of 20th-century technology, is exploring the visual capabilities of microelectronics in jewelry. His use of liquid crystal displays as a design element adds a sense of time, movement and rhythm to the work.

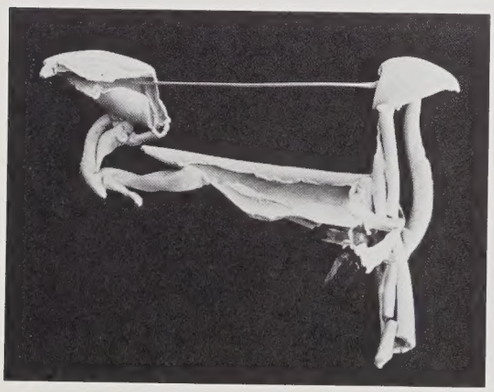
Reed uses photo-anodized and colored titanium to create bold and powerful graphic images. His work continues to speak to the issues of man's isolation in an era of sophisticated technology. Another common theme in his work is man's inhumanity toward man, which is usually depicted by juxtaposing images of people and war machines. Reed's images move and pulse, changing position as they appear and disappear. In exploring the question of humanism in an age of technology he uses bright colors, suggesting the triumph of the human spirit. The work's prophetic nature seems to be warning us of man's possibly disastrous future.

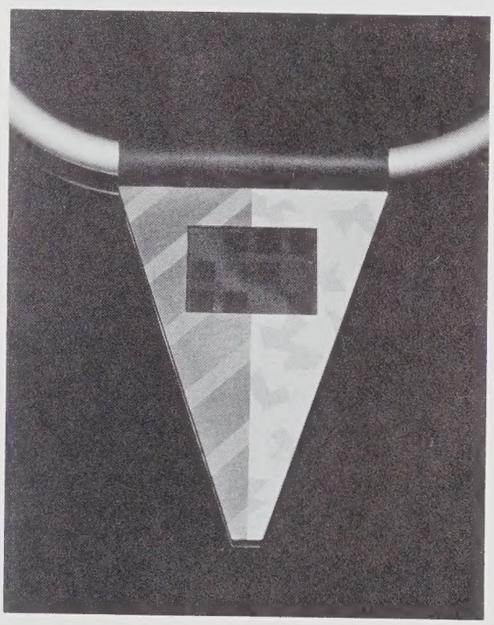
In Reed's most recent work he seems to be having more fun, drawing on fantasy as a source of inspiration. His piece *Battle of Pobillo XIK-Dawn* is reminiscent of a primitive cave painting, possibly from another planet. It is a wall piece depicting two warriors from a fantasy world facing each other holding spears. A liquid crystal display resembling a radiating sun separates the two figures.

Reed's work is concerned with the impact of a graphic image. The artist tries to minimize mechanisms and devices for attaching his pieces to the body whenever possible so that nothing interferes or competes with his imagery. His images are constantly moving, powered by one-year batteries. The latest work comes with an acrylic stand. This was a logical direction for Reed because these pieces can now be displayed when they are not being worn.

Vernon Reed was not trained as a jeweler or metalsmith. He is as interested in science as he is in art, and because of this he brings a unique perspective to the creation of jewelry and metalwork. ■

**Below:** Stanley Lechtzin, *Brooch 71E*, electroformed silver, amethyst crystal, 4¾ × 6 × 1½", 1983; **Right:** Stanley Lechtzin, *Torque 70E*, electroformed silver gilt, quartz crystal, pearls, 6¾ × 7½ x 2", 1983; **Far right:** Vernon Reed, *Neckpiece*, titanium



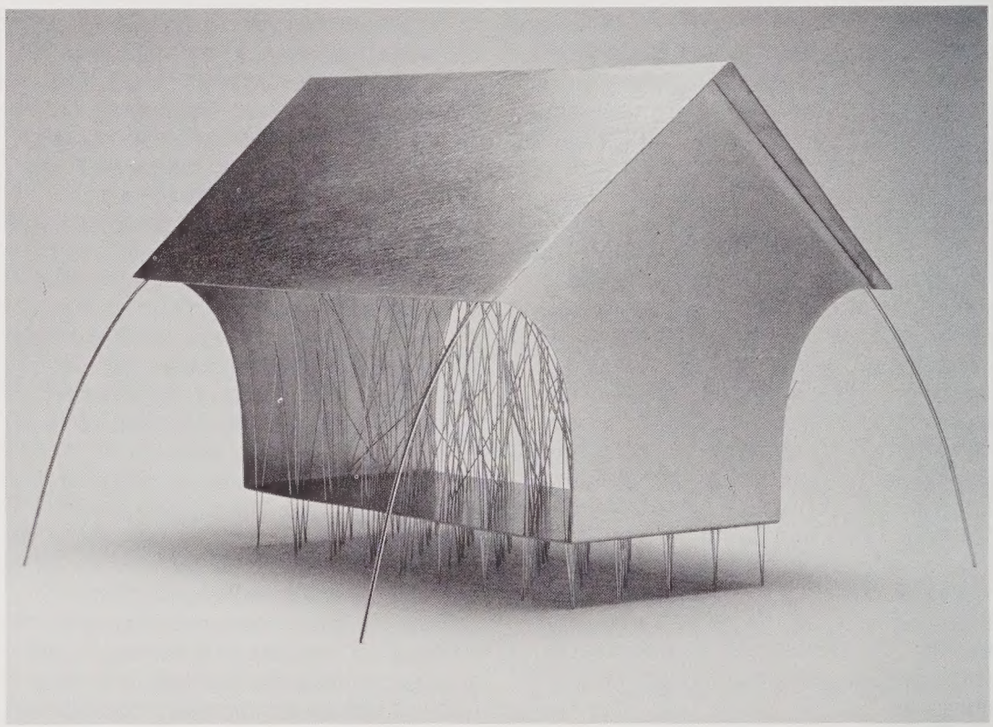


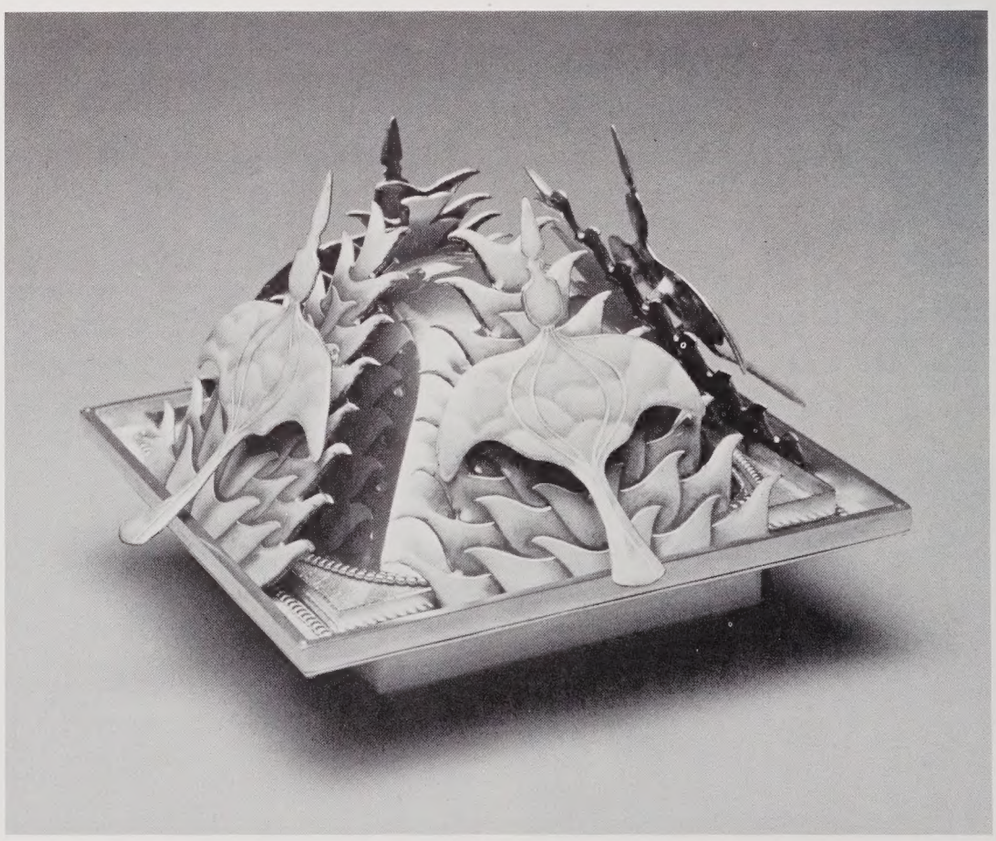
**Jewelry and Beyond**
Mitchell Museum, Mount Vernon, IL
April 21 – May 30, 1984
Fashion Institute of Technology, NYC
June 7 – 17, 1984
by David Prince, Curator, Mitchell Museum

The purpose of "Jewelry and Beyond" was to examine recent examples of metalwork and jewelry in an effort to identify significant new trends in esthetics and technical experimentation. Requests were mailed to distinguished members of the Society of North American Goldsmiths asking for an example of their most current work. Eighty-seven artists responded and the resulting group of objects was almost overwhelming in its diversity. Gradually, however, out of this eclectic group came the message that, in general, metalwork is moving out of the realm of crafts and into the mainstream of contemporary art. Clearly, the strongest works in the show were those attempting to assimilate the formal concerns of contemporary art into the size and scale of traditional metalwork.

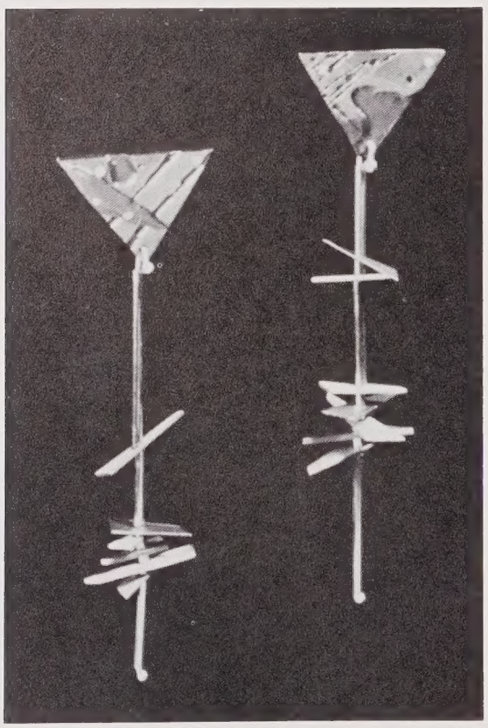
What makes this evolution so interesting is the central problem faced by metalsmiths of developing and maintaining a distinct identity both individually and as a group. Historically, metalsmiths have been perceived as artisans whose purpose was to make objects of functional and/or decorative merit. Their pieces were usually small in size and meticulously crafted from fine metals and other rare materials. Contemporary metalsmiths have become frustrated by the restrictions imposed by this legacy and have begun to experiment with new techniques and materials in a search for an esthetic alternative. *Jewelry and Beyond* exhibited several new approaches to the field.

Most clearly seen in the exhibition was a strong movement towards creating pieces addressing purely sculptural concerns. Gary Griffin's large, freestanding steel construction defiantly challenges the historical definition of metalwork in its use of common material and boldly constructivist composition. Richard Helzer uses a variety of materials to form a tablelike structure on top of which is a surrealistic landscape made up of independent metal elements. The tabletop itself is a piece of white acrylic overlaid with a blue acrylic grid pattern. This grid unifies successfully the diverse elements of this very personal composition.





**Below:** Enid Kaplan, *Figures in Landscape*, 14k gold, sterling silver, etched titanium, paint, 3¼" l, Photo: Doug Long; **Above right:** Thelma Coles, *Inner Stability*, copper, stainless steel, 15 × 21 × 21½"; **Right:** Barbara Minor, *Flight from Water to . . .*, enamel, brass, silver



These examples stand in sharp contrast to John Marshall's *Wing Bowl* and Ron Wyancko's *Silver Subterranean*. Marshall and Wyancko perpetuate a style popularized by Scandinavian artists in the 1940s. Their pieces are straightforward and emphasize a cleanness of form and a smooth, fluid line. Unfortunately, both fail to inject new life or meaning into this now dated stylistic lexicon.

Between these two poles there are a group of artists who have integrated successfully the concepts of historic metalwork into a personalized format that asks to be judged solely on contemporary esthetic merits.

A fine example of this work is *Inner Stability* by Thelma Coles. Using sheets of copper and stainless steel rods, Coles creates an open, domestic-looking structure. The house rests on a series of stilts that pierce the floor and extend up into the interior. They then split apart and fill the structure like reeds waving in a marsh. The subtle tension created by these interwining rods is harmoniously juxtaposed by the clean line and carefully proportioned size of the surrounding house.

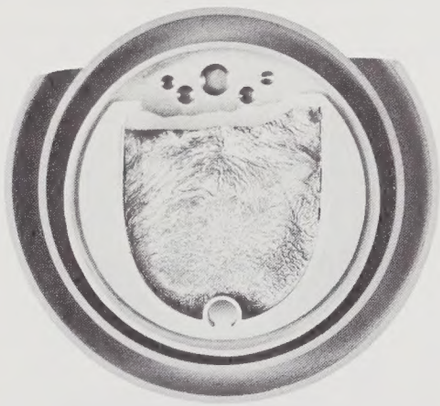
A similar sense of harmony is established in Barbara Minor's *Flight from Water to Water*. Like Coles, Minor is able to create a work that is refined and elegant. The true success of the work, however lies in her ability to inject a personal attitude and stylization that distinguishes the work from other pieces fashioned in the more aloof International Style. She achieves this through a deft and marvelous use of enamel coupled with a sense of form and composition that binds the various elements of the piece into a tightly knit whole.

In the exhibition's examples of jewelry there could also be found artists breaking free of past traditions.

One of the most ambitious is Enid Kaplan whose *Figures in a Landscape* integrates a pair of earrings into a similarly scaled, highly expressionistic three-dimensional landscape. Kaplan adds further excitement and visual movement to her sculpture by making vivid use of the color potentials of the various titanium and niobium elements.

Kim Bass stays strictly within the bounds of jewelry and, nevertheless, manages to create a piece of wonderful freshness and humor. Her two-pin set *Snow White and the Seven Dwarfs* presents the major characters of the fable as tiny cloisonnéd enamel pins. The figures are near to being caricatures, each having his or her own identifying symbol. One pin combines the wicked witch, the sleeping princess and the attending prince while the other portrays the seven dwarfs. Through this strongly personalized concept, Bass transcends the historic parameters of jewelry and moves into the wider ring of fine art.

Artists such as Bass, Coles and Minor succeed in lifting themselves out of the role of craftsman into the role of artist because they initiate their work from an intense point of view, creating work which is completely self-sustaining. ■



**Above far left:** Barry S. Merritt, *In Homage to Ivan Kliun*, Photo: Richard Margolis; **Above left:** Timothy L. Lloyd, *Brooch*; **Left:** Kim Bass, *Snow White and the Seven Dwarfs*, enamel; **Above:** Gary Marsh, *Native American Item*

**Peggy Johnson—Housewearables: Jewelry**
The Works Gallery, Philadelphia, PA
June 10–July 3, 1984
by Alida Becker

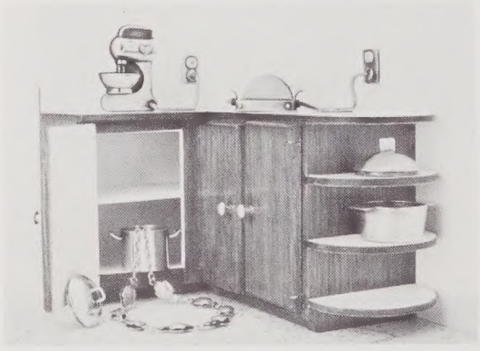
It's small wonder that Peggy Johnson credits Lewis Carroll with inspiring at least one of the cunning assemblages in her tiny household of wearable art. In fact, there's a delightfully other-end-of-the-looking-glass quality about all this work, which features small-scale utensils doing double duty as earrings, a toaster or a radio plugged in as pins and a necklace that dangles sterling silver pots and a frying pan of 14k gold.

There's enough careful detail here to satisfy the miniaturist with a flair for 50s nostalgia, but at the same time a slightly fantastical whimsy intervenes. For while Johnson does produce the occasional single piece, she seems to have much more fun concocting clever little mix-and-match sets. Thus her sterling silver soup tureen opens to reveal a sterling and pearl necklace, which can be further adorned by a gold ladle that easily hooks into place. The necklace, by the way, spells out "beautiful soup"—with a bow to Carroll's "The Mock Turtle's Song."

In a similar fashion, a sterling silver bowl (whose parts are adaptable as earrings) is stamped with the phrase "life is just a bowl of cherries." And, sure enough, right there inside is a string of carnelian beads. Even more elaborate is Johnson's version of the all-purpose department store wok set: an eight-piece, made-to-scale collection including a copper-lined wok with a cooking stand and various racks, a string of 14k gold-fish on a silver chain and a pair of 14k gold chopstick earrings.

One can easily imagine Carroll's heroine Alice delightedly choosing between all these tiny surprise packages. Will it be the copper casserole with a necklace of stamped copper carrots? Or the "fine kettle" of sterling silver fish? A vegetable soup pot in which earrings masquerade as tomatoes, onions and the like? A silver trout necklace in its own poacher? Or baby peas in jade, simmering in a silver container?

Perhaps the piece that best sums up the appealing good spirits of the whole collection is Johnson's five-piece birthday cake set: a silver pendant in the shape of a cake, with a chain coiled inside its own stand, decorated with two pearls that detach to become earrings. It's the perfect celebration of the pleasure this artist obviously takes in her meticulous craftsmanship, a pleasure that's almost impossible to resist. ■



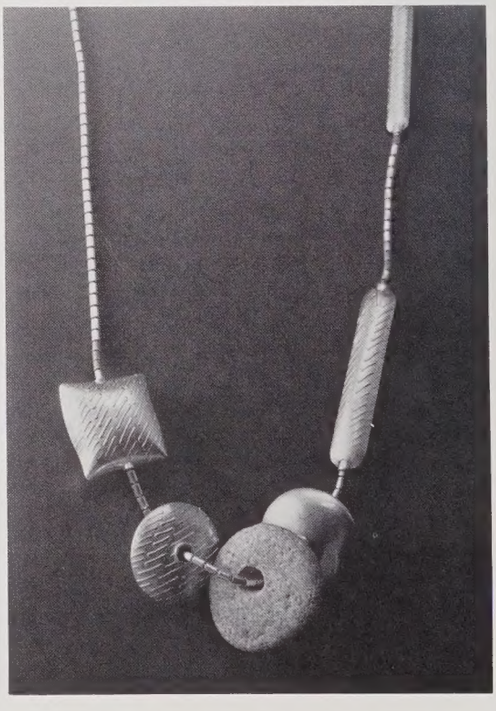
**Jan Yager**
Swan Galleries, Philadelphia, PA
May 23–June 23, 1984
by Barbara Satterfield

Jan Yager's work is like a Japanese Haiku. It is spare in format but rich in metaphor. The work comes from a contemplative spirit, one that gently enjoins the viewer to participate in the maker's meditations.

The Oriental flavor of Yager's work permeated the 63 pins, necklaces and earrings recently on display. Not surprisingly, Yager says that while working at the museum at the Rhode Island School of Design as a graduate student she was influenced by the textile patterns found in Japanese kimonos and in the shapes of mid-Eastern cuneiform tablets. Texture and form are probably the most pervasive features of her work.

During graduate school Yager began to explore the potentials of the tablet form in making what she calls "precious little objects to hold." These objects, with puffed ridges, metal feathers, appliquéd apple slices, or "stone spots," beg to be handled and fondled. She thus encourages an intimacy between the viewer and the object. The reference to the kimono is clearly present in the earlier, more formal, raised patterns Yager stamps onto her forms.

In 1980, while at RISD, Yager began research for her thesis. Working in Providence, in close proximity to the jewelry industry, she was inspired to use technology for production purposes. Using a hobbing, or coining, press she first stamps her texture onto the metal (usually sterling silver) and then uses a small



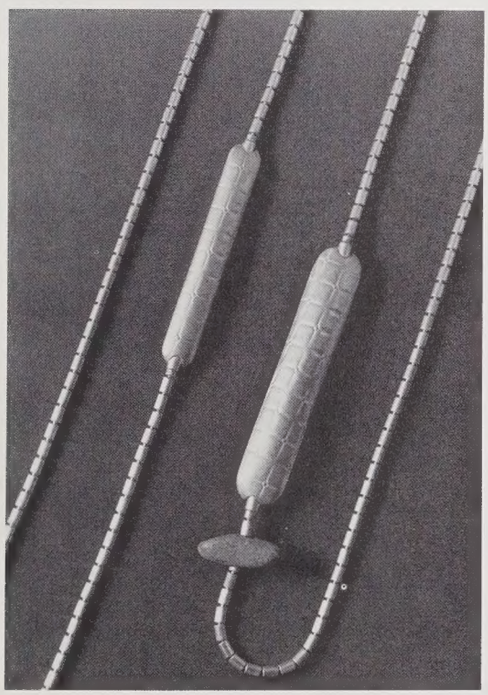
**Top center and above:** Peggy Johnson, *Housewearables*, oxydized sterling silver, 14k gold, cake—1 × ½"; **Right:** Jan Yager, *Rock Necklace*, sterling silver, beach rock; **Far right:** Jan Yager, *Elongated Pillow Necklaces*, sterling silver, beach rock

hydraulic press to push out the forms. Yager is particularly adept at using these techniques to best advantage. Each piece is then cut out and fabricated by hand. Although she is willing to use technology, she finds the "machine esthetic" unappealing, and does not want it to dominate her work. She developed her "Whomp and Puff" series as the ultimate antithesis of the machine. Even though she uses almost exclusively pure, geometric forms, corners of her pieces are rounded and each form is pillowed. In most cases a layer of fine silver is built up on the surface, which is then left with a soft white finish. These soft and rounded pillow forms have a particularly feminine and sensuous quality.

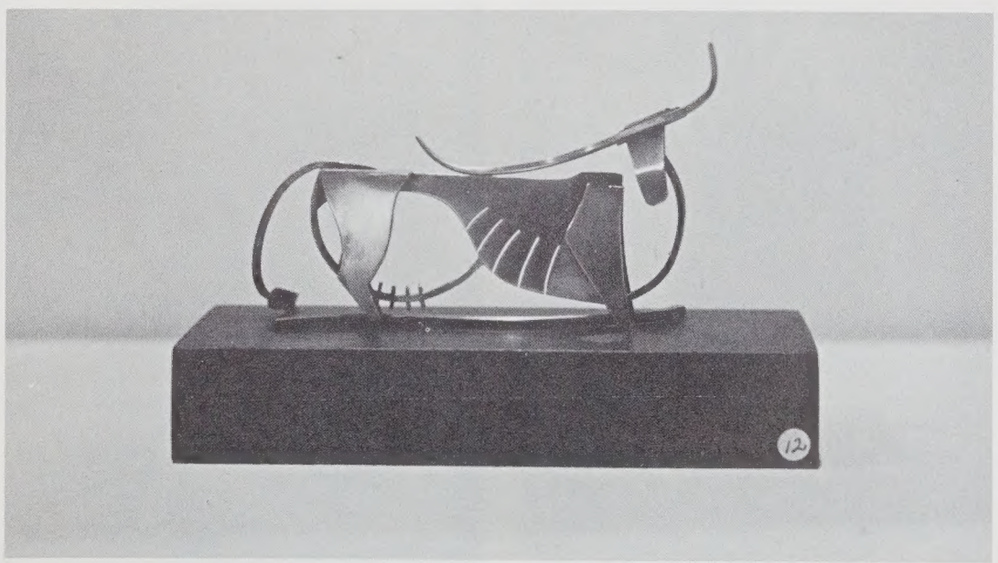
A recent move to Philadelphia and the advent of the Swan show prompted Yager to develop her work a step further. She started by creating some new, more organic textures which she applied to her familiar forms. Instead of using the forms singly, as she had done in the past, she began to combine them, stringing them on thick chains, leaving the elements free to move and be moved. They now invite the wearer to participate in the piece by deciding the positions of the various components. The mobility of the units, the inclusion of different shapes and the potential variety of compositions make these necklaces more interesting and more playful than single units hung from a chain. There is the added auditory bonus of the pleasant sounds these units make as they clink against each other.

Yager's work evolved even further with the addition of odd little stones deftly juxtaposed with the handmade metal forms. She has collected these stones over the years for their simple shape, color and texture. Most of the stones are Petrosky, the state stone of Michigan, her home state. These unpolished stones, smoothed only by the ravages of nature, evoke a sense of mysticism and magic. Because they are primal, their juxtaposition with objects that are clearly of the here and now is at first disquieting. Upon further reflection, however, we see that each stone provides a subtle counterpoint to the man-made forms in metal. These new pieces seem to evoke a sense of Yin and Yang, man and nature, old and new, a harmony of disparate parts. They are a step beyond the purely decorative because they ask us to question and to think about relationships.

Yager's work is not exciting in the sense that it dazzles us with technical mastery, or with its innovative use of new materials, or with the creation of new forms. Her work has not developed in leaps and bounds. Rather, the work is a progression of little steps, a slowly evolving process of thought and feelings. The work is like the artist: calm, contemplative and serene. It speaks softly, encouraging us to leave the chaos of our everyday lives and take the time to listen, to feel, to get in touch with what the work has to say. The necklaces have the quality of worry beads, and one can visualize these pieces generations from now, passed down through families who have loved them and handled them to the point where all the texture is simply worn away. ■



**Right:** Paul Lobel, *Cat on a Stick*, sterling silver, 3½ × 4½"; **Below:** *Longhorn*, sterling silver, 6½" w.



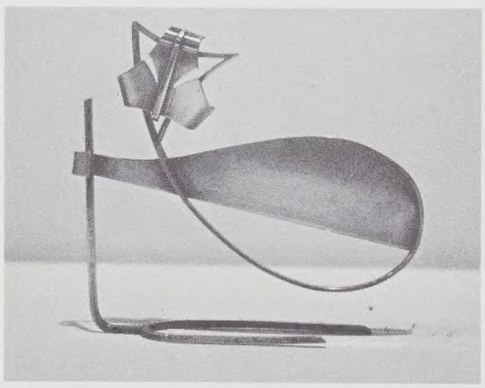
## Paul A. Lobel 1900–1983, Memorial Exhibit

Hudson River Museum, Yonkers, NY
June–July, 1984
by Cynthia Cetlin

Paul A. Lobel, a Rumanian, studied at the Art Students League in New York, becoming a designer, sculptor, silversmith and craftsman in many materials. In 1925, in a one-man show in Paris, he exhibited drawing, painting, etching and metalwork.

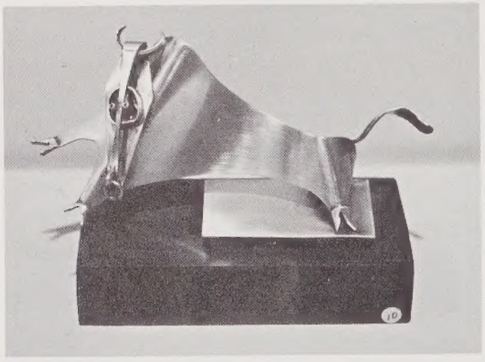
Lobel was a well-known artist in Greenwich Village during the 40s and 50s. His beautiful and popular jewelry was widely influential to a generation who learned from his skills and innovations. He is best remembered for his abstract sculpture first celebrated in an exhibition called "Shining Birds and Silver Beasts" at the American Museum of Natural History in New York City.

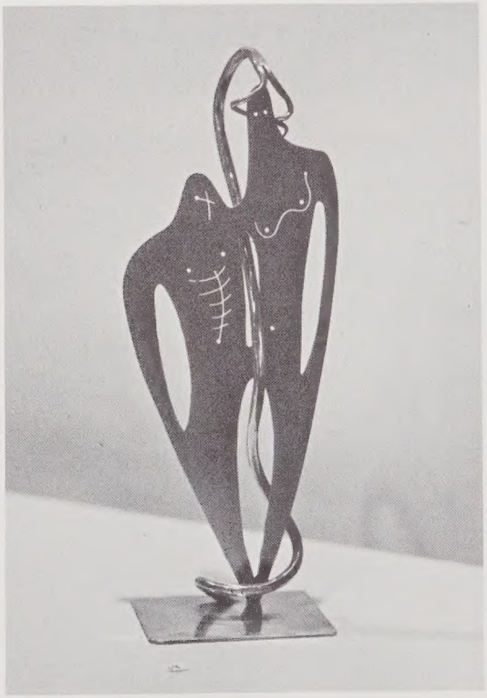
This memorial exhibition of 26 sterling silver sculptures of people and animals done by Paul Lobel reflected that artist's awareness of popular trends in 50s design. The influences of Picasso, of African art and of the biomorphic abstractions of Gorky and other painters had affected craft design. Lobel's small sculptures, particularly *Bison, Charging Bull* and *Toreador* are reminiscent of



Picasso's bullfights and of the work done at Antibes; many of the human and animal faces in Lobel's work recall African tribal masks; and the sleek, organic abstractions of both animate and inanimate objects are distinctive of 50s art and design. In this group of sculptures a recurring mood of whimsy, liveliness and naiveté reflects the optimism and innocence of the time. Many of the sculptures, such as *Cat on a Stick, Together, Fiddler on a Cello* and *Adam and Eve* are narrative, humorous, sometimes cartoonlike.

The technically simple construction of the sculptures is appropriate to their naive, primitive quality. The structures are very well made and sturdy, constructed from heavy sterling sheet and wire. These works, although executed with a mature facility, display a limited technical range consisting of forging and tapering, soldering, piercing and a limited amount of forming. As sculpture, they are quite frontal and need only be viewed from one angle, a fact which reinforces the impression that Lobel was primarily influenced by two-dimensional art. ■





## VII Biennale International l'Art de l'Email

Chapelle du Lycee Gay-Lussac,
Limoges, France
July–September, 1984
by Kathryn R. Gough

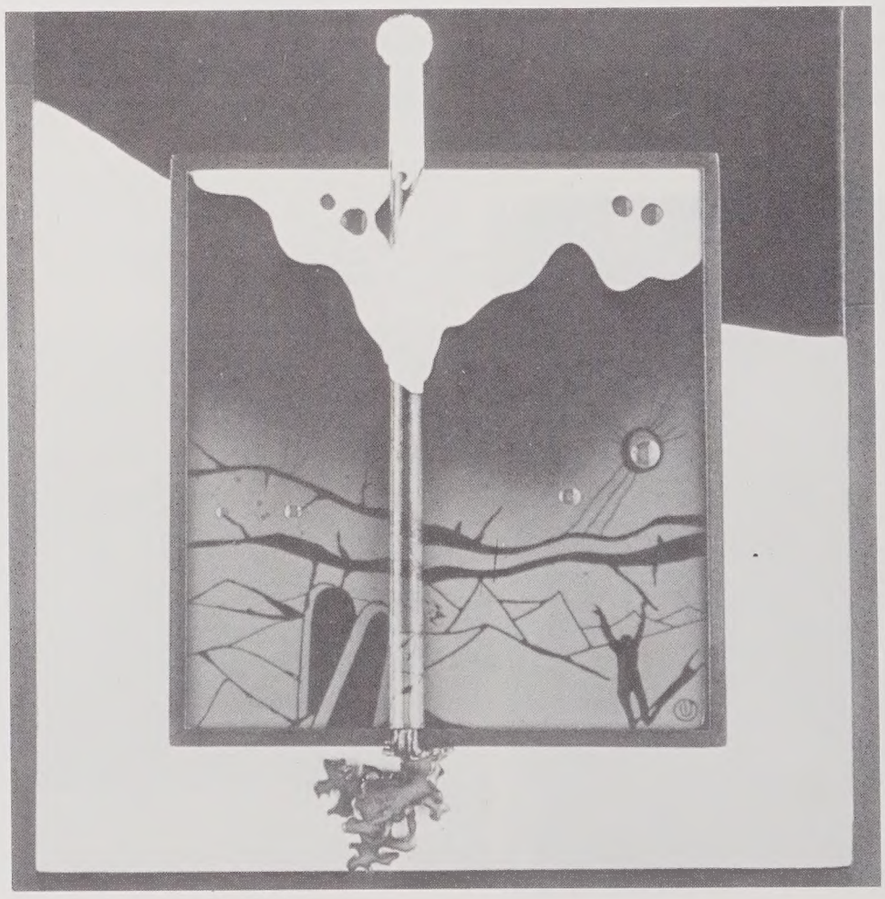
Of the 1000 pieces submitted to this biennial enamel exhibit, 300 pieces from 25 countries were chosen to be shown. This year for the first time there were enamels from the People's Republic of China and the Soviet Union. The invitation was extended to these countries with the understanding that all pieces sent would be exhibited without being submitted to judging.

The Chinese sent a four-man delegation with an interpreter. The men represented small factories (their business-card stated: Arts and Craft Corp. of Ministry of Light Industry) which produce the traditional Chinese cloisonné that we see in the United States and consequently was the work on display at this year's exhibition.

The real excitement and surprise was the Russian enamels. A number of the enamels portrayed political and human-rights issues. A member of the Biennale staff told me, "We couldn't believe our eyes when we opened the boxes. The Russian authorities must consider enameling such a minor art that they didn't censor the shipment." The stark simplicity of *Fenetre I* and *II* conveyed much meaning. *Fenetre I* was a photoetched metal sheet of a stone wall through which a window had been cut. Behind the window was mounted an enamel treetop. *Fenetre II* was a photoetched brick wall, and behind the two cut-out windows was a brick wall, beautifully enameled in various shades of red and orange. The wall piece *Kremlin* was a constructed venetian blind, on the slats of which was a silhouette of the Kremlin. The wall piece *Man and Environment* portrayed human figures with raised and grasping arms. There were other Russian enamels (38 in number) showing peasant scenes of men shearing sheep and other activities. No Russians attended the conference, but two older women came from the satellite countries of Czechoslovakia and Hungary.

The VII Biennale was an excellent enamel show. The French have invested much time and effort in making it a successful international view of enamels. Five awards were given this year: Marianne Duntze, Germany, received an award for her cloisonné wall plaques; Valsis-Capelleja, Spain, for his mixed-media eternal female portraits; S. Klopsch, Germany, for abstract wall murals; C. Christel, France, for his sculptured enamel goblets, and Kathryn Gough, U.S.A., for jewelry. ■

**Left:** Paul Lobel, *Charging Bull*, sterling silver, 6" w; **Below left:** Paul Lobel, *Adam + Eve*, sterling silver, 11" h; **Below:** Indoulis Ourban, *Man and Environment*, enamel, 27.5 × 27.5cm



**The Aquarellist and The Smith**
Art Center, San Luis Obispo, CA
May 26–June 17, 1984
by Barbara Young

The strong shift of focus that has occurred over the past decade in metalsmithing, from art form to designer piece, is well reflected in Crissa Hewitt's work. Within this period, economic forces, really global macroeconomics, and our own evolving social trends have had profound effects on the world of metalsmithing, as every smith well knows. With a net profit of 5% on a wholesale gross of $100,000 sales yielding only a national average income, the scramble to learn production methods is clearly the only race worth entering.

However, some smiths have not opted for the money game and still prefer to work as traditional craftsmen, not production designers, and Crissa Hewitt is one such person. The very nature of this exhibition tells you that much.

This exhibit was a collaborative effort between Hewitt, professor of metalsmithing at Cal Poly, and Fred Lauritzen, professor at Cal State University in Northridge. Hewitt was Lauritzen's student before going on to Cranbrook. Both exhibited metalwork and Lauritzen exhibited watercolors and prints, making a very pleasant combination that, in a sense, took one back in time when art and craft were good words to use. Design, designer and designerly were yet to come.

The primary sensibility that motivates Hewitt is touch, and the container is a favorite form; hence, many of her pieces have to be handled to be appreciated. They are heavy and solid with nice, snappy, clicky closures, well engineered. Crissa says she has no desire to make lightweight pieces. "Maybe this is a luxury because I am not trying to make the last dollar on every piece." Remember?

Several factors combine to make one feel to have stepped back in time in viewing this exhibition: some of the materials used and their treatment, the intimacy of the esthetic and the high touchability rather than an anonymous high-tech look. These are friendly pieces.

Perhaps the most personal example of work was the little sculpture *Homage to Mine Eyes* which contained Hewitt's eye-glass lenses in use before 1982 when she underwent double cataract surgery. It was only post-surgery that she was able to realize how much vision she had lost, gradually, over a period of several years. Today she wears contact lenses and glasses and, quite rightly, has gained a renewed confidence in herself, partly due to an increased physical mobility. The past two years she has begun studying large-scale bronze casting learning the traditional methods, as are many sculpture students today—an interesting trend in itself.

For whatever reasons, Hewitt pursues the traditional craftsman's path, responding to material, loving the way it feels and searching for ways to transform it by her own vision and pass it forward as a finished product to be enjoyed by others.

Some analysts are predicting a still different configuration to the art-craft-design triad for the 1990s, with the high-touch need only increasing in parallel with the evolution of our high-tech society. One well-known source of this idea is Naisbitt's *Megatrends,* but others are saying it too, including government sources. I cannot see how it will work economically, but then the first antique piece of jewelry to crack £1,000,000 in a London auction house only happened two years ago.

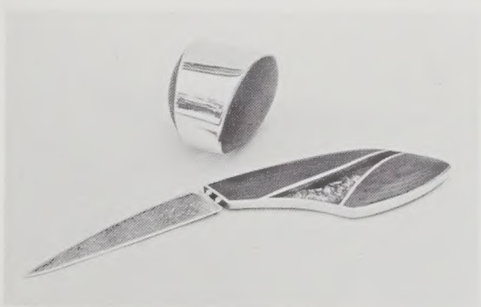
Fundamental traditions just don't go away forever. ■

**Linda Weiss-Edwards and John Edwards: Jewelry**
Running Ridge Gallery, Santa Fe, NM
August 3–22, 1984
by Lane Coulter

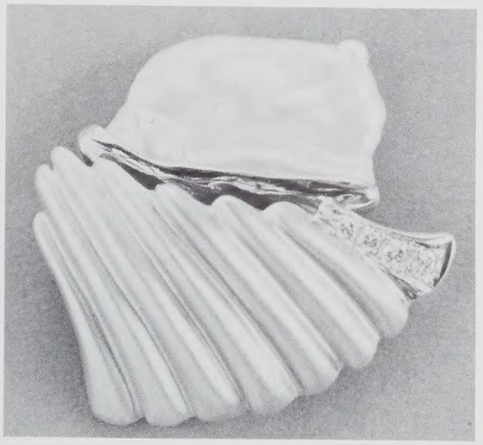
For this exhibition the Edwards, a California couple who have been working collaboratively since 1979, created an elegant group (21 pieces) of wearable jewelry, primarily in 14k yellow gold with additions of pearls, diamonds and colored gemstones. The emphasis of the jewelry is on forms reminiscent of sand dunes. In keeping with this theme, their major work for the past three years, and for this exhibition, has utilized large fresh-water Biwa pearls carefully selected for their rectangular shapes. Many designers would allow the strong forms and seductive surfaces of the pearls essentially to become the piece, to dictate the design and to allow the metal to be used as hardware or to be diminished in its emphasis. The Edwards meet the challenge of these incredible pearls head-on, inventing gold shapes equaling both the strength of the forms and the sensuousness of the surfaces.

The gold forms in the work are strengthened by the use of sequential shapes with a change in size of the repeated units. The soft volumes create edges of a smaller scale, while the glowing texture of the finely sandblasted surfaces replicates the delicate qualities of the pearls. This interplay of the man-made and the natural creates a variety of visual complexities for the viewer. Additional jewelry in the exhibition combined formed and cast gold elements with very complex forms in translucent stone. ■

**Below:** Crissa Hewitt, *Letter Opener and Paperweight,* sterling silver, rosewood, bocote; **Right:** Crissa Hewitt, *Three-Cornered Pot,* raised brass, cast bronze, teak lined



Weiss/Edwards, *Pendant/Brooch,* fresh-water pearl, diamonds, 14k gold



**Multiplicity in Clay, Metal, Fiber**
Skidmore College Art Center,
Saratoga Springs, NY
July 7–September 23, 1984
by Cynthia Cetlin

According to its curator, Regis Brodie, the "Skidmore Craft Invitational" was designed to bring together a stylistic range of some of the best and most innovative of contemporary work. Having achieved this aim, the resulting exhibition was informative and exciting. The "metal" section of the exhibition, the largest of the three disciplines represented, contained 92 works by 25 artists, with work ranging from earrings to large, steel sculptures. Artists with strong, established styles were sought for the exhibition; the result of this search was a selection of well-known metalsmiths whose work has been nationally exhibited.

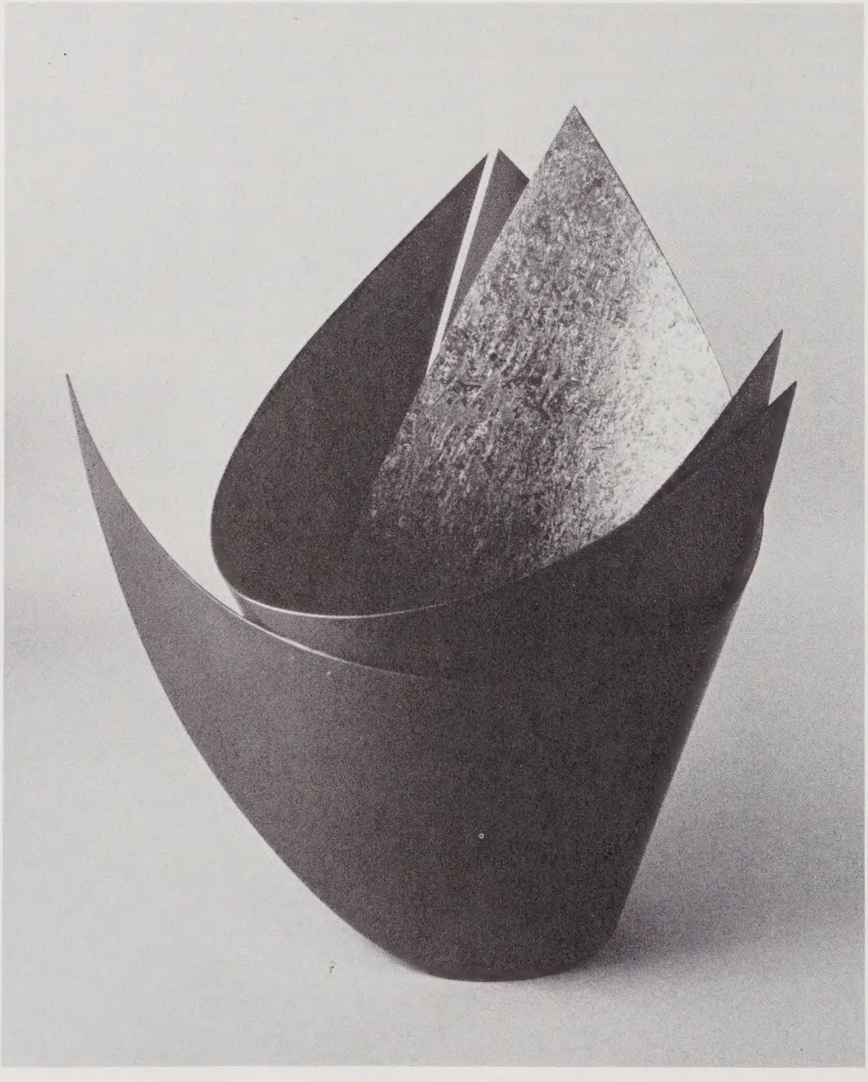
Among the group of metal sculptures, *Angry Warrior Under a Cloud of Knives* and *Meaned Up Man and Woman* by Bruce Metcalf were stunning, dynamic examples of Metcalf's style. Often the transition from jewelry, with its perfection and fine detail, to sculpture is an awkward one. Metcalf finds a way to make highly successful sculptures which still retain something of the goldsmith's orientation to media, technique, detail and surface texture. In these sculptures, the scale is still small enough, and the forms sufficiently complex, to justify the rich detail and often precious, or preciously treated materials. The viewer is drawn by the drama and complexity of the forms. While the mood of Metcalf's sculptures is often angry and violent, there is also a joyous and youthful exuberance.

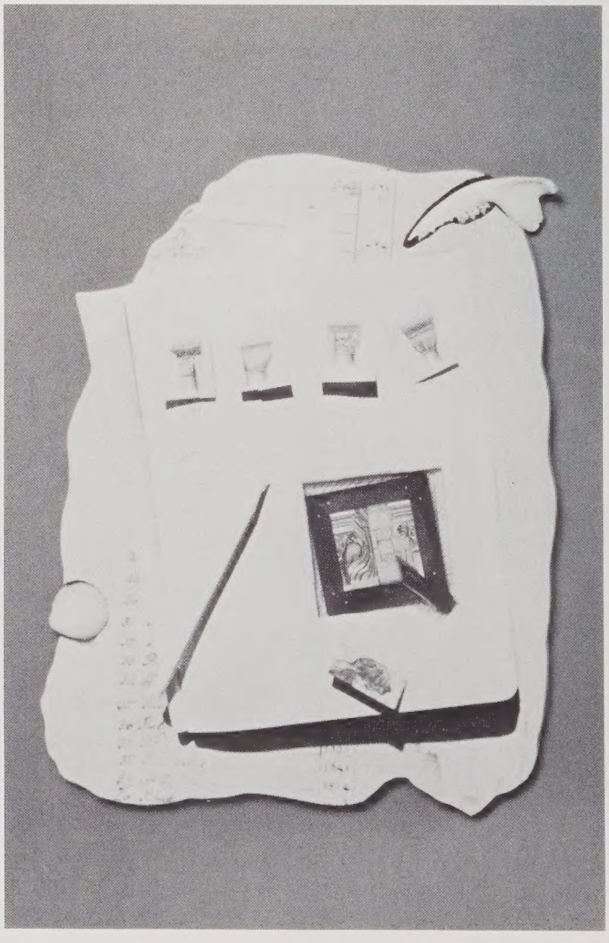
*Construction* and *I Wish I Had Known Herbert* by Gary Griffin were tall, welded-steel sculptures, representing an almost complete departure from the small, polished world of goldsmithing. These powerful pieces, both about nine-feet high, still conveyed a certain feeling of fragility, with their very long, slightly tilting and graceful verticals. Appropriate to an artist with the training of a jeweler, Griffin has added to these works some very small objects, such as a hat, an arrow, a tiny fence, which are arranged upon a "landscape" within the sculpture. To someone outside the field of metalsmithing, however, the addition of these details might seem decorative or out-of-scale.

Louis Mueller's *Rude Host* and *Venetian Mathematician,* while relatively small in scale, belong to the category of contemporary sculpture, as opposed to metalsmithing. Mueller's references to other works of art and to stylistic trends were thoughtful and abstract.

*Triskelion* and *Mixed Metaphor,* both by Carol Kumata, revealed yet another path taken by a metalsmith/sculptor. Both sculptures had a metaphorical subject, and in each the primary element was a pleasing, rather architectural metal (copper or bronze) form. In these particular works, the addition of paint and materials, such as wood or plastic—elements so often welcomed in contemporary metalsmithing—detracted rather than added to the finished sculpture. These somewhat garish and literal elements lessened the air of ambiguity and subtlety present in some of Kumata's other works.

Another departure from the traditional subject matter of jewelry or holloware were the more two-dimensional works, or wall pieces. *Wall Object* by Robert Ebendorf was actually the result





**Left:** Helen Shirk, *Vessel CV5B,* copper, 9×12×11", 1984; **Below:** Robert Ebendorf, *Wall Object,* 24k gold, bone, photograph, silver foil, abalone shell, ivory, seashell, wood, 11×14"; **Right:** Gary Griffin, *Construction;* **Far right:** Jamie Bennett, *Josephine's Room,* enamel, copper, wood, acrylic, 15×12×4". Photo: Andrew Dean Powell

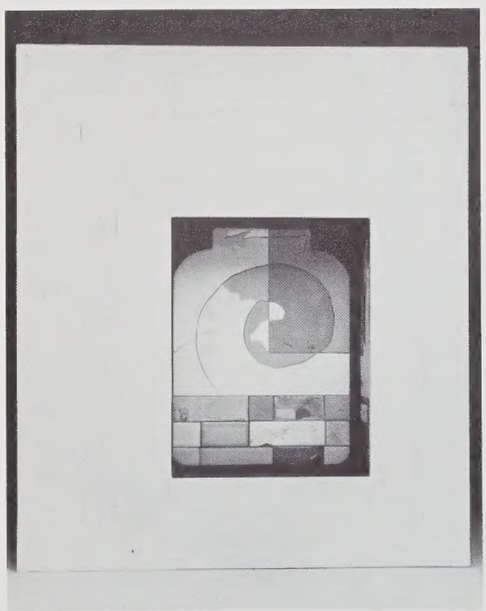
of a collaboration with photographer Francois Deschamps. Consisting of a three-dimensional object within a collage of photography and other materials, this work deals with photography, *trompe-l'oeil* and actual objects. The square object within *Wall Object* reflects unmistakably Ebendorf's style and his jewelry and is remarkable in its integration with the surrounding photographic elements. It is interesting that Ebendorf chose not to turn the small, three-dimensional object into a pin to be removed from the wall piece, a by now popular solution. Another mixed-media wall piece was *Tale of Ise* by Eugene and Hiroko Pijanowski. Within the work were actual pins which could be removed and worn. While this was a complex and subtle work with an intimate, participatory quality, it was not as cohesive as *Wall Object*.

Jamie Bennett's work was strikingly represented by both wall pieces and brooches, all involving framed enamels. The enamels, done in a restrained and expressionistic style with subdued palettes and matte surfaces were severely framed and reflected Bennett's deliberate choice to participate in this field as a primarily two-dimensional, painterly artist. One sensed in this very personal style a thoughful rejection of the decorative and of references to function or to preciousness. In contrast to Bennett's enamels, Martha Banyas's *Terpsichore* reveled in the brilliance and complexity of traditional Limoges enameling, while presenting her dynamic, representational imagery.

Holloware, that exacting discipline, was exhibited by a few, very innovative artists. Helen Shirk's early holloware consisted of beautiful containers, full of complex sculptural juxtapositions, which may have seemed belabored, if only in the making. These recent containers were fresh, more simply constructed, with a focus on strong directional forms, combined with color obtained through rich patinas. *Holloware Construction #4* by Susan Hamlet, a goblet shaped like an inverted cone, standing on angular legs, contained tiny geometric objects scattered along the cone's inner wall. There was a machined, impersonal quality to this work, and at the same time a mysterious intimacy in the small, contained objects which obscured the goblet's function. Robin Quigley's pewter *Figurative Bowls I—III* revealed abstracted faces reminiscent of Paul Klee's work and of tribal masks. The nails (hair) protruding from each bowl (which was actually a shallow platter) reinforced their primitive quality.

The greatest part of the "metal" exhibition consisted, appropriately, of jewelry, which ranged from the traditional to the innovative. Some works represented a continuation of an artist's established style (Reinhardt, Mawdsley, Harper, Lechtzin, Woell, Arentzen); others revealed new directions in the artist's oeuvre (Fisch, Hu, Shirk).

William Harper's *Archangel* pendants and a series of brooches entitled *Savage I—V* gave breathtaking evidence of a personal style which is unaffected by current fashions and trends. Harper's work incorporated with assurance qualities which many artist/metalsmiths eschew: brilliantly rich enamels, highly precious materials, a certain decorative aspect, an extravagance, a thoughful attention to function. Encompassing these qualities is a powerful esthetic, laden with spiritual and fetish references.



A new direction was evident in three brooches by Eleanor Moty. These sculptural pieces incorporate tourmalinated-quartz, crystals and silver in small, effective, geometric objects. There is no separation between stone, setting and the rest of the piece; each brooch is a completely unified, abstract image. Bracelets by Mary Lee Hu also revealed stylistic changes in an established artist's work. Forms have been simplified and restrained, enabling the viewer to appreciate the flawless craftsmanship and pleasing combination of finely woven metal structures with smooth surfaces of silver and gold.

David Tisdale's anodized aluminum jewelry, characterized by solid masses of color and the layering of planes fastened together by simple, mechanical connections, had an immaculate, geometric grace. Whitney Boin's collection of gold earrings represented a different category of jewelry than the other work in the exhibition. Much more commercially oriented, it did not seem in keeping with the spirit of the exhibition. Edward de Large's *Banana Torc, Banana Earrings* and *Classical Earrings,* also production jewelry, were simply made, witty and artful. The *Classical Earrings,* an obvious yet delicately rendered pun, reminded one of an 18th-century architectural drawing.

The artists in the "Clay, Metal, Fiber" exhibition contributed, on the whole, work of a very high caliber. While certain stylistic connections were revealed among the three crafts, one was made aware of styles, trends and issues peculiar to each. In the fiber exhibit, one felt the strong influence of other two-dimensional disciplines, such as printmaking and painting. In the clay exhibit, I was struck by the diverse schools of thought that are the history of contemporary clay. Metalsmiths, often looked upon as the more tradition-bound group among the crafts, the group which was slower to change and innovate, slower to stretch the parameters of the craft, can no longer be classified in this manner. Just as the clay and fiber exhibitions showed great creative energy and diversity, so did the metal section. Since metalsmiths have more recently broken with more traditional concerns, such as the development of and preoccupation with technique, and with the conventions of jewelry and holloware, this display of such superior work was all the more exciting. ■

**Stephen J. Albair: 9 LIVES and OTHER LIES . . . 1984**
80 Washington Square East Galleries,
New York City
July 5–20, 1984
by Pat Maggio

"Contextual sculpture" is Stephen Albair's way of describing his current work. Although a rather vague description, it is strikingly apropos when viewing the strange, story-telling scenes depicted in his sculpture/jewelry. In his latest show, Albair moved beyond his early preoccupation with the "fashion" aspect of jewelry into a more serious genre that surpasses the implied obsolescence and disposability of fashion.

Not to worry—the work has taken on new complexity in fully developed ideas that were once only hinted at, but Albair has lost none of his sense of the absurd, and every new piece is sure to evoke at least a smile as he jokes with us and pokes fun at life.

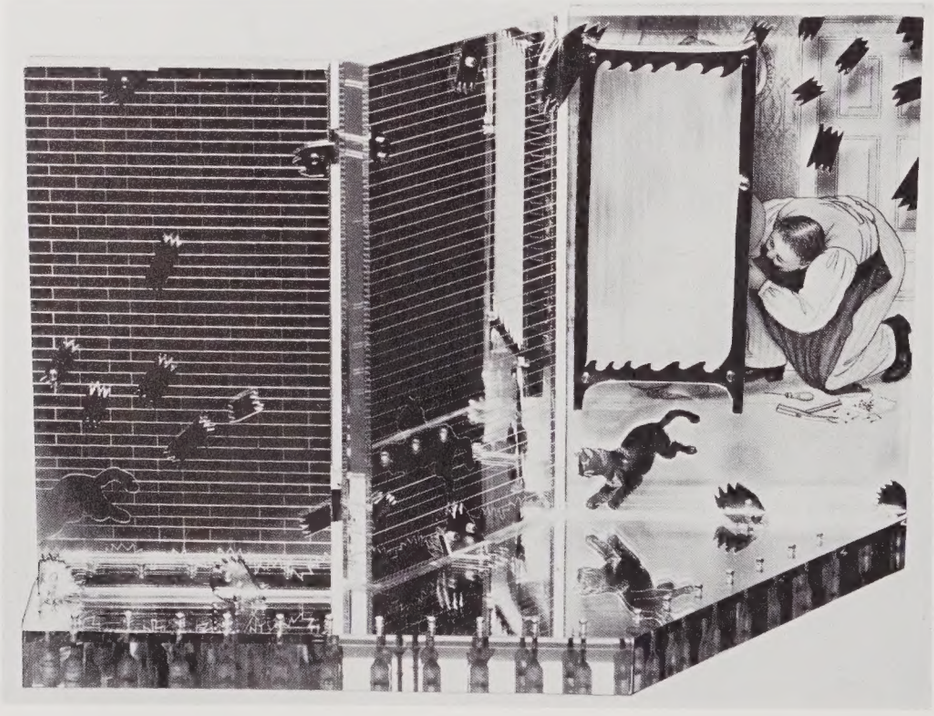
Starting with a single image he layers ideas and information onto it, from xerographic drawings and photographs through to the final intricate sculpture/jewelry. When the wearer of a piece of Albair's jewelry reaches into the sculpture to remove it for wear, an entire history unfolds. The strong narrative quality of the image along with the supporting prints and sculpture give this history to the piece. In making the viewer aware of what jewelry can be, Albair successfully redefines the whole nature of jewelry.

*9 LIVES and OTHER LIES . . . 1984*, the title piece, is a small sculpture atop a 48″ base. The viewer's curiosity is aroused by a gold-plated brass screen that a cat (an engraved-brass found object) has just leaped from under. When the screen is removed all questions about the unusual imagery, created in part by another found object—a postcard, are answered, and once again Albair succeeds in amusing and teasing his audience. The woman standing behind the screen holds a removable tie tack/lapel pin in her hand and the gentleman in what seemed a questionable pose is found to be innocently repairing a sofa.

The piece was crafted of etched mirror plexiglass, to reflect the image back to the viewer, so the viewer becomes part of the image. The use of clear plexiglass allows the piece to be translucent eliminating any distinction between front and back. The gold-plated brass fixtures lend a jagged, fragmented textural element to the slickness of the rest of the piece. The incredible attention to detail shows evidence of the compulsive, bordering on the neurotic, but this only adds dimension as Albair simultaneously layers ideas and materials in ways never seen before.

The ambiguity of each piece leads one to the conclusion that the subject doesn't matter much. It could be this or that, depending on the viewer's experiences and prejudices. What matters is the freshness and candor of the vision. Albair has the unique ability to make us see the strange and the familiar at one time in his work and makes them complement and belong together—a very special talent. ■

**Below:** Stephen J. Albair, *9 LIVES and OTHER LIES . . . 1984*, tie-tac, lapel pin, mirrored plexiglass, plated brass, 18k gold, found objects, 9 × 7 × 6″; **Right:** a view down the hall in front of the U.S. Pavilion



**The European Watch, Clock and Jewelry Exposition**
Basel, Switzerland
April, 1984
by Etienne Perret

The European Watch, Clock and Jewelry Exposition is the world's largest and most sophisticated jewelry show. It is held in Basel, Switzerland every April, with 1,100 exhibitors showing their finest designs.

Both the quality of the jewelry and the types of display are far beyond the best of the American shows. Instead of flea-market-like open booths, the jewelers in Basel use rooms with a door that closes and display cases on the aisle. This makes the boothes like little stores or offices where one can conduct business more privately. Many of the exhibitors go to great lengths to make their displays more extravagant than those of their neighbors.

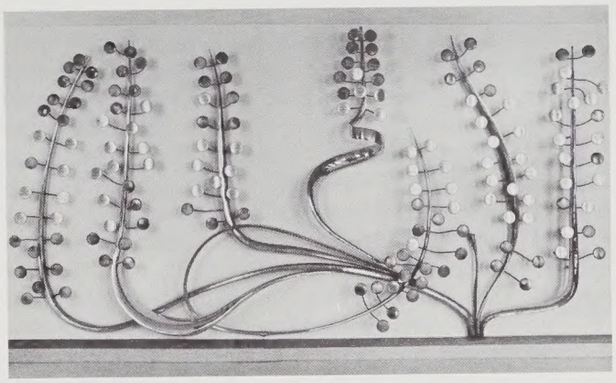
The method of doing business is also different from that of U.S. shows. In America buyers are always looking for new designs and something different. The buyers in Europe are more careful. Change happens more slowly, with buyers often waiting many years before going into a new line or look. But, on the other hand, when they do, they are willing to make a commitment to it and will probably stay with it longer.

Currently, there are only 12 American firms that exhibit at the show. Two firms are multinational companies with European offices and the other 10 participate in the U.S. Pavillion, organized by the Manufacturing Jewelers and Silversmiths of America (M.J.S.A.). The show administration has limited American participation to the space allocated to M.J.S.A., who chooses the exhibitors based on their quality and likelihood to succeed in the European market.

As a whole, the European Watch, Clock and Jewelry Exposition is not a place to go looking for innovative ideas. Instead, it is the sophistication and refinement of years of experience that makes the show so special. ■

# OPINION

## Objects in Space: Future Arena for Silversmiths



**Above:** Heikki Seppä, *Memorial Menorah*, bronze. 1983;
**Above right:** Anne Taussia, *Wave*, sterling silver, 1976;
**Right:** David Jaworski, *Compass Series*, bronze and blown glass

An object in space is exactly what the name implies, namely one which by design has left the company of its table– or wall-bound predecessors, like coffee pots and sconces, and assumed the role of an object without a function. It has taken up the role of an image of containment to invoke ideas and conjure responses in concert with the observer. Various positions invoke different responses. Suspension usually renders the most suitable ambience, and the ultimate in the choices of form may now play the long-lost game with internal spaces.

Why such a radical jump from the recognized formality of functional silversmithing? Perhaps the most obvious practical reason can be found in the change of mores, habits and customs. The consumer society is less likely to use silver vessels any more, due to the trouble of serving, cleaning and caring for such paraphernalia, let alone the cost. Heirlooms end up in glass cabinets only to be looked at, just like flintlock rifles on the wall, never to be used again. However, silver need not be excluded from the environment of a contemporary person. Objects for contemplation have long been a part of home surroundings. And silver, with its inherent value, just might embody the ideas and intent of its maker longer than one made of cheaper material.

Another reason for silver's use, much closer to the heart of a creative metal artist, is the freeing of the material totally for the purposes of expression. There need no longer be a well-pouring spout or a comfortable handle as design requirements. The work can be wholly expressive in its form and the "scratches" on it.

Consider the ultimate in design meeting the requirements of function, and you'll have, as the prime example, modern stainless steel eating utensils. To change anything but the surface scratches in the best-designed spoons, knives and forks, there must be a change in their use. People's habits must change. Utensil designs have met every requirement put on them. They can not be improved until their usage changes.

Yet another valid reason, and perhaps the best one from the esthetic point of view, is the final riddance of the volumetrically superior rotation form. Such forms might be comfortable as stabilizers of our otherwise chaotic lives, but to seek nuances of noncyclical expression in such clockwork precision seems as futile as it ever was. Cyclical recurrences are well understood, and are "old hat." Such movements are predeterminable and totally devoid of any surprises. To promote the esthetic value of a rotation form is tantamount to closing one's eyes in the face of irrefutable evidence that such a system is finite. There are seven basic rotation forms whose multitude (seven raised to the seventh power) gives us a sweet number of millions, which seems to imply an infinite number of choices. But this is only a camouflage; the basics still spell "finite."

Ever since the invention of the wheel, we have been esthetically imprisoned by the rotation form. We seem to find endless streams of beauty in it. Yet its products are everywhere and are literally holding us hostage to renew our loyalty to its values, over and over again. Any aspiring artist would be horrified to find that his/her options are already taken, and that there are no new ones available, all innovations having already been done.

Are objects in space needed? No, not in the same sense as the eating utensils, but they are desirable in the same sense as any art objects are. The desire grows from sources other than functional needs. And yet, part of that desire is already planted in the human mind. It isn't so strange to think that environment, in its form-oriented mode, has much more of an influence on a person's psyche than peacock feathers hanging from thumbtacks on a flat, sterile wall.

Form, by itself, has profound influence as far as human environment is concerned. Human history tells us of more devotion, more meaning, deeper belief—whether religious, political or other human relations—put on the forms, symbolizing them, than two-dimensional ornament (i.e., scratches on just any surface) of any kind.

We, the silversmiths, know very little of form. How do we identify forms? How do we develop new forms? Are there any new forms? What is the psychological effect of a given form on a human? Is there anything to the psychological effects of "touchstones?" Form versus color—what to make of it? What if they're combined? Is it time to have a form language? At this time in 3-d education, there is no known methodology to generate, develop or identify three-dimensional objects for esthetic or symbolic effect.

If a horizontal line is more tranquil than a vertical line, what is the equivalent difference between a sphere and the most jagged shard, a quadrahedron? If we associate a message of any kind to a dotted line, can we dismiss the energy of a helical, tangible object? Primary material, I agree, but the issue is whether or not 3-d art has a content. As one writer queried, "Is subject matter or content still insignificant in relation to form? Are representational images still taboo?"

I'd have to resort to an age-old cliche: "Yes, the world is round, and reality is concretely under you, all else is illusion." Form can speak louder in more fundamental terms, thus having more of a content than scribbles on the sidewalk or the ephemerality of "Kilroy." The 3-d artists, especially the versatile silversmiths, can capture a whole new era of contribution to art, life and that old profession.

Two-dimensional ornament is specific, ephemeral and delightful for today. But think—if you make something out of durable material, it might last forever, and tell of you and your times on this earth. Stainless steel is okay, silver is not bad, gold is eternal, and the thought of man's message is yet older.

*—Heikki Seppä*
*July, 1984*
*while ruminating in*
*the Finnish woodlands*

# BOOK REVIEWS

**Enamels, Enameling, Enamelists**
by Glenice Lesley Matthews, Chilton Book Co., Radnor, PA, 1984. 177 pages, 263 black and while and 21 color illustrations, $21.95.

Glenice Matthews has written a book about enameling that is at once detailed and comprehensive, and one which should prove eminently useful to both beginners and more experienced enamelists. It is filled with practical information and instruction, written with unusual clarity such that it will be understood by one just starting out in the medium. And as the first comprehensive book on the subject to appear in more than a decade, it includes some current material not presented in previous books.

The opening section of *Enamels, Enameling, Enamelists* explains in detail the rudiments of enameling — the characteristics of enamel powders, the metals with which they can be used, the supplies and equipment needed, the cleaning and preparation of the materials, and the firing procedures and pitfalls. Included is a discussion of safety precautions, not contained in earlier books we are familiar with, reflecting the growing safety-consciousness of today's craftworkers. The beginner may need to return to these opening chapters more than once in order to fully absorb and comprehend them; the more experienced enamelist may find much useful information here as well.

After laying this foundation, Matthews presents six step-by-step projects introducing the new enamelist to relatively simple, basic enameling techniques. These are the use of graffito and stencils, wet packing, "threads and blobs," Limoges, rendering with ceramic underglaze pencils and cloisonné. The projects are well selected to expose the beginner to a variety of technical experiences and potential imagery, and one or two of them should provide the struggling newcomer with some needed "instant gratification." The text for these projects is clear and easy to follow; unfortunately, however, it is not always adequately illustrated in the accompanying photographs.

The book also presents, in its final section, a description of more than 20 additional approaches to enameling. These include such time-honored techniques as basse-taille, champlevé and grisaille; such modern developments as silk-screening, raku and fuming; and the use of such additional materials as decals, foils and metal oxides. With a few exceptions, no effort is made to explain "how to" use these techniques or materials. But some of them are not even described in any previous book, and their inclusion here should serve to confront the reader with the vast and varied potential of the enamel medium and to stimulate further exploration and development.

No book on enameling would be complete without advice on how to avoid or remedy the most common technical problems encountered at one time or another by anyone who works in the medium. Matthews has included a "Trouble-shooting" chapter, subtitled "don't give up — there's always hope." Both the beginner and the more experienced enamelist will find useful material here. Not only are there tips on how to deal with such problems as cracks and bubbles, firescale and burnout, but there is here and there an explanation of how the properties of enamel and metal contribute to these disasters.

Elsewhere in the book there is useful material on such matters as stoning and finishing, ways of mounting enamels and making color samples. One of the best suggestions of all appears near the beginning, under the heading "Starting a personal enameling record." A notebook for sketches, ideas and jottings on how a particular result was achieved can be a great asset to anyone, whether novice or accomplished artist.

Of course, no single book — not even one as detailed and comprehensive as this one — can cover all one needs to know in learning to enamel. (Matthews wisely includes a good bibliography.) *Enamels, Enameling, Enamelists* should be used as a guide and a reference along with other books. Each will add something to the enamelist's knowledge. In Matthews' book, for example, there is little discussion of the characteristics and uses of the various fluxes, or the characteristics of many enamel colors which cause them to react badly with silver.

Some enamelists, moreover, will find a few topics overstressed. The instructions and admonitions on cleanliness seem excessive in their detail and repetition; many enamelists take satisfactory short-cuts. The book's list of supplies goes well beyond a beginner's requirements. What one needs to buy is ultimately determined by the direction taken in one's work; an inexpensive "hobby kiln," for example, is adequate for small work and has many advantages over larger, more costly ones. Even the safety instructions, welcome as they are, seem excessive; safety gloves, for example, are needed only when working with large kilns.

As Matthews herself says, she presents "a way" not "the way" to enamel. Beginners must not be put off by some of her more elaborate instructions. The novice should read her book and then plunge in. In the end, there is no substitute for experimentation and experience.

Finally, it seems that books on enameling inevitably focus on technique. But technique, after all, is simply the means for realizing artistic goals. One always hopes, therefore, that even a technical book about enameling will take the time to encourage good design and stimulate creativity. The text of *Enamels, Enameling, Enamelists* does not attempt to do this. But the scores of photographs, some in color, that the book contains constitute a marvelous survey of the diverse art being created by contemporary enamelists (though not, regrettably, the rich enamel art of the past). One hopes that this visual stimulus will have a lasting impact on the reader.

— Belle and Roger Kuhn

**The Nature and Art of Workmanship**
by David Pye. Cambridge University Press, 1968, $11.95

The Cambridge University Press is not exactly what you would call "heavy into crafts." It's a good bet, then, that when they offer a work for our field, it's going to be something special. This small volume fulfills that promise.

In this compact gem of a book, Professor Pye (Furniture Design, Royal College of Art, London) presents a well-reasoned treatise on the philosophy of objects and distinctions pertaining to them. With the precise stepping-stone logic of classical philosophy, Pye moves economically from observation to definition to resolution with an intellectual grace that is a pleasure to watch.

In my opinion the strongest passages are to be found in the first half of the book, though the latter half is worth the time spent there. The author begins by dismissing the word "craftsmanship" as lacking a satisfactory definition, and suggests instead the word "workmanship." He divides this term into categories in-

volving risk (situations where the maker's abilities are open to success or failure; cases where the product is at risk), and the workmanship of certainty, as in factory manufacture, where the result is predetermined and without risk. These valuable terms are enlarged and serve as door-openers to a host of clear postulations. The author leads us through the difference between "free, rough, precise, and regulated" work, stopping along the way to clarify the uselessness of "handmade" and "machine-made."

While it's true that semantics play an important part in this book, the text goes far beyond the limits of an academic exercise. By prodding the reader to reexamine traditional terms, the author offers a practical resource for designers. Clear, meaningful definitions can lead to a precise understanding of an idea. And clear thinking is the best starting point for meaningful design.

Not everyone will take to the painstaking, scholarly style of *The Nature and Art of Workmanship*. I think Pye has created a very readable text, but it's not the sort of thing you breeze through over breakfast. To me this is a testament to its concentrated intensity. Another tribute to the depth of this book is its ability to reflect the thoughts of its readers. When I first read this book two years ago I was very impressed. After recently rereading it, I am again impressed, and I find that my now-changed perceptions find new meanings in the text. It's a book I'll want to read again in a year or two, to see what other insights are waiting to be found.

— Tim McCreight

# TECHNICAL BRIEFS

**by Tim McCreight**

*Dear Tim: I've been working in metal for several years now, but I'm embarrassed to say I don't really understand much about sandpaper. Maybe you can help me out.*

If we are to be technically accurate, we should use the term "coated abrasives" instead of sandpaper. This refers to a class of products in which abrasive particles are adhered onto a backing. The topic is not difficult to understand but does involve a number of interrelated factors, so it can seem complex. Any coated abrasive can be described in terms of the hardness of the particle, the size, shape and distribution of the particle, the method of adhesion and the nature of the backing material.

Since as far back as we can guess, chunks of gritty rocks were rubbed against an article to wear down its rough spots. Ayr Stones are, of course, exactly this ancient technique, virtually unchanged. First records of sandpaper come from 13th-century China, where broken seashells were glued onto parchment. In Europe a few centuries later, glass was glued onto paper.

By simply rubbing one material against another it's easy to tell which is harder. Early craftsmen would have experimented with stones of their region and established a hierarchy of abrasive materials. Some of these, like garnet, emery and sandstone are still in common use. Science, specifically magnification, has allowed us to better define characteristics of abrasive particles, but the idea of coated abrasives hasn't been altered in over six centuries.

Besides hardness, another important factor is the size of the abrasive particle. To insure efficient cutting, the particles should be of uniform size. This is most easily established by sifting the grains through screens of varying mesh sizes. These sizes became convenient devices for classifying the size of the particles, so the number of the screen was applied to the particle size. Smaller numbers (screens having fewer holes per square inch) referred to large particles, and so on.

Anyone who has walked barefoot on both a pebble beach and a gravel road will know that the shape of a particle is as important as its size. Investigation has shown that minerals break differently when crushed, some having sharp splintery edges, others breaking into more rounded forms. These shapes dramatically affect the cutting action of the abrasive. It has also been discovered that the method of reducing large pieces of stone to small particles, either by crushing or pulverization, can result in grains of different shapes. The ideal abrasive is one that splinters as it is worn, constantly presenting fresh, sharp cutting edges. Garnet is an example of such an abrasive.

Throughout most of history natural stones have been used to meet abrasive needs. One problem with this was the diversity found in materials gathered from different sites. Another was the increasing scarcity of some substances. Late in the 1800s, scientists discovered how to make silicon carbide and aluminum oxide, now the two most commonly used abrasives. Both rely on the high temperatures of huge electric furnaces to fuse ore into very tough particles. Subsequent research has seen the development of increased control in the size, hardness and other qualities of these products.

Backing materials in popular use are paper and cloth. Some applications require flexibility while others need rigid support. Water-soluble resins are usually used in flexible coated abrasives, while waterproof glues are better for applications where liquids are present. Many metalsmiths prefer waterproof (wet-or-dry) paper since it offers the versatility of double use and because its adhesive tends to be less sticky as the paper breaks down in use.

Grains of abrasive particles are laid onto their backing in either dense or scattered distribution. The latter, usually called open coat, is less likely to clog and so is preferred for "gummy" materials like pewter, lead or plastic. The denser structure, closed coat, leaves a finer finish on tough, clean-cutting materials.

As far as their use in metalsmithing goes, much can be said about the right and wrong ways of using abrasives. Careful reading of a good jewelrymaking textbook will prove worthwhile, but here I can at least summarize some of the important points: Finishing must proceed in an orderly sequence from coarse to fine papers; probably to include something in the 100s, the 200s, the 300s and the 400s, at least. Strokes should run in different directions with each stage of the process, and at each stage the metal must be brought to a uniform surface. Abrasives require muscle behind them, so devices that increase leverage and good grip (like a sanding stick) are important. Keep in mind the difference between hardness and size. Silicon carbide has a Moh's hardness of over 9, making it a lot harder than even your largest, nastiest-looking file. This is especially relevant when working around a stone. Even a 600-grit paper, as harmless as it seems, will scratch all stones except diamonds.

*Send questions for this column to: Tim McCreight, 23 Mill Road Circle, Boylston, MA 01505.*

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## EXPO/NEW YORK

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March 4, 10 a.m. – 8 p.m.
March 5, 9 a.m. – 4 p.m.

Sheraton Centre Hotel, New York City

## EXPO/PROVIDENCE

Features exhibits for manufacturers of costume jewelry, semi-precious jewelry and sterlingware

March 10, Noon – 6 p.m.
March 11, 11 a.m. – 8 p.m.
March 12, 11 a.m. – 8 p.m.
March 13, 10 a.m. – 3 p.m.

Providence Civic Center, Providence

## EXPO/WEST

Features exhibits for western manufacturers of precious, semi-precious, and costume jewelry and sterlingware

April 21, Noon – 7 p.m.
April 22, 10 a.m. – 8 p.m.
April 23, 10 a.m. – 4 p.m.

Westin Bonaventure Hotel, Los Angeles

SET THE PACE

# EDUCATIONAL PROGRAMS CONDUCTED BY THE JEWELRY INSTITUTE

## EXPO/NEW YORK

All seminars and workshops will be held at the Sheraton Centre Hotel, 7th Avenue at 52nd Street, New York City. All seminars cost $20.

**SEMINARS**

SN1
PROMOTING AND SELLING YOUR PRODUCT
March 3, 1985 10 a.m.–Noon
Level: Intermediate

SN2
CORRECTING CASTING DEFECTS/ LOST WAX CASTING
March 3, 1985 3 p.m.–5 p.m.
Level: Intermediate

SN3
COMPUTERIZING YOUR FIRM
March 4, 1985 10 a.m.–Noon
Level: Basic

SN4 – AJM SEMINAR
DESIGNING PRODUCTION JEWELRY
March 4, 1985 3 p.m.–5 p.m.
Level: Basic to Intermediate

SN5
FINANCING PRECIOUS METALS
March 5, 1985 10 a.m.–Noon
Level: Intermediate

**WORKSHOPS**

WN1
STONE AND DIAMOND SETTING
March 2 & 3, 1985 9 a.m.–5 p.m.
Level: Basic
Hours: 14 Cost: $150

WN2
JEWELRY DESIGN AND RENDERING
March 2, 3, & 4, 1985 9 a.m.–5 p.m.
Level: Basic to Intermediate
Hours: 21 Cost: $200

WN3
WAX CARVING AND DESIGN
March 2, 3, & 4, 1985 10 a.m.–4 p.m.
Level: Basic to Intermediate
Hours: 15 Cost: $150

WN4
PRINCIPLES OF ELECTROPLATING
March 3, 1985 1 p.m.–5 p.m.
Level: Basic
Hours: 4 Cost: $50

WN5
MARRIED METALS TECHNIQUES
March 4 & 5, 1985 9 a.m.–3 p.m.
Level: Basic to Intermediate
Hours: 10 Cost: $125

WN6
LOW COST BLANKING SYSTEM
March 4, 1985 1 p.m.–4 p.m.
Level: Basic
Hours: 3 Cost: $75

WN7
COLORING REFRACTORY METALS
March 5, 1985 9 a.m.–Noon
Level: Basic
Hours: 3 Cost: $75

WN8
FUNDAMENTALS OF VIBRATORY/ CENTRIFUGAL FINISHING
March 5, 1985 9 a.m.–1 p.m.
Level: Basic
Hours: 4 Cost: $50

**TECHNICAL INFORMATION EXCHANGES**

CONDUCTED BY PETER GAINSBURY
EN1 March 3, 1985 6 p.m.–9 p.m.
EN2 March 4, 1985 6 p.m.–9 p.m.
Level: Intermediate to Advanced
Cost: $50

## EXPO/PROVIDENCE

All seminars will be held at the Providence Civic Center, LaSalle Square, and cost $20. All workshops will be held at The Jewelry Institute, 40 Sims Avenue, Providence, RI.

**SEMINARS**

SP1
WASTE WATER TREATMENT – YOU MUST COMPLY
March 10, 1985 10 a.m.–Noon
Level: Intermediate

SP2
PROMOTING AND SELLING YOUR PRODUCT
March 10, 1985 3 p.m.–5 p.m.
Level: Intermediate

SP3
FINANCING PRECIOUS METALS
March 11, 1985 10 a.m.–Noon
Level: Intermediate

SP4 – AJM SEMINAR
DESIGNING PRODUCTION JEWELRY
March 11, 1985 3 p.m.–5 p.m.
Level: Basic to Intermediate

SP5
REFINING IN THE JEWELRY INDUSTRY: AN OVERVIEW
March 12, 1985 10 a.m.–Noon
Level: Intermediate

SP6
CORRECTING CASTING DEFECTS/ WHITE METAL
March 12, 1985 3 p.m.–5 p.m.
Level: Intermediate

SP7
LINE SECURITY/ON THE ROAD AND IN YOUR PLANT
March 13, 1985 10 a.m.–Noon
Level: Intermediate

**WORKSHOPS**

WP1
STONE AND DIAMOND SETTING
March 10, 11, & 12, 1985 9 a.m.–4 p.m.
Level: Basic
Hours: 18 Cost: $200

WP2
HARD SOLDERING
March 10, 11, & 12, 1985 9 a.m.–4 p.m.
Level: Basic
Hours: 18 Cost: $200

WP3
LOST WAX CASTING AND MOLD CUTTING
March 10, 11, & 12, 1985 9 a.m.–4 p.m.
Level: Basic to Intermediate
Hours: 18 Cost: $200

WP4
JEWELRY DESIGN AND RENDERING
March 10, 11, & 12, 1985 9 a.m.–5 p.m.
Level: Basic to Intermediate
Hours: 21 Cost: $200

WP5
ELECTRICAL DISCHARGE MACHINING
March 10, 11, & 12, 1985 6 p.m.–10 p.m.
Level: Basic
Hours: 12 Cost: $125

WP6
WHITE METAL MOLDMAKING
March 10, 11, & 12, 1985 6 p.m.–10 p.m.
Level: Basic
Hours: 12 Cost: $125

WP7
ORNAMENTAL HAND ENGRAVING
March 10, 11, & 12, 1985 6 p.m.–10 p.m.
Level: Basic
Hours: 12 Cost: $125

WP8
PRINCIPLES OF ELECTROPLATING
March 10, 11, & 12, 1985 6 p.m.–10 p.m.
Level: Basic
Hours: 12 Cost: $125

WP9
HARD FIRED ENAMELING
March 10 & 11, 1985 9 a.m.–4 p.m.
Level: Basic
Hours: 12 Cost: $125

WP10
FURNACE SOLDERING
March 11, 1985 9 a.m.–3 p.m.
Level: Intermediate
Hours: 5 Cost: $50

# 1985 MJSA EQUIPMENT AND SUPPLIER EXPOSITIONS

SET THE PACE

## EXPO/PROVIDENCE
**continued**

WP11
JEWELRY POLISHING
March 11 & 12, 1985 6 p.m.–10 p.m.
Level: Basic
Hours: 8 Cost: $75

WP12
LOW COST BLANKING SYSTEM
March 11, 1985 9 a.m.–Noon
Level: Basic
Hours: 3 Cost: $75

WP13
DECORATIVE EPOXYING
March 12 & 13, 1985 9 a.m.–4 p.m.
Level: Basic
Hours: 12 Cost: $125

WP14
MARRIED METALS TECHNIQUES
March 12 & 13, 1985 9 a.m.–3 p.m.
Level: Basic to Intermediate
Hours: 10 Cost: $125

WP15
FUNDAMENTALS OF VIBRATORY/ CENTRIFUGAL FINISHING
March 13, 1985 9 a.m.–1 p.m.
Level: Basic
Hours: 4 Cost: $50

WP16
COLORING REFRACTORY METALS
March 13, 1985 9 a.m.–Noon
Level: Basic
Hours: 3 Cost: $75

**TECHNICAL INFORMATION EXCHANGES**

CONDUCTED BY PETER GAINSBURY
EP1 March 10, 1985 6 p.m.–9 p.m.
EP2 March 11, 1985 6 p.m.–9 p.m.
Level: Intermediate to Advanced
Cost: $50

## EXPO/WEST

All seminars and workshops will be held at the Westin Bonaventure Hotel, Fifth and Figueroa Streets, Los Angeles. All seminars cost $20.

**SEMINARS**

SL1
CORRECTING CASTING DEFECTS/ LOST WAX CASTING
April 21, 1985 10 a.m.–Noon
Level: Intermediate

SL2
COMPUTERIZING YOUR FIRM
April 21, 1985 3 p.m.–5 p.m.
Level: Basic

SL3
LINE SECURITY/ON THE ROAD AND IN YOUR PLANT
April 22, 1985 10 a.m.–Noon
Level: Intermediate

SL4 – AJM SEMINAR
DESIGNING PRODUCTION JEWELRY
April 22, 1985 3 p.m.–5 p.m.
Level: Basic to Intermediate

SL5
PROMOTING AND SELLING YOUR PRODUCTS
April 23, 1985 10 a.m.–Noon
Level: Intermediate

**WORKSHOPS**

WL1
WAX CARVING AND DESIGN
April 20, 21, & 22, 1985 9 a.m.–3 p.m.
Level: Basic to Intermediate
Hours: 15 Cost: $150

WL2
ADVANCED MODELMAKING
April 20, 21, & 22, 1985 8 a.m.–7 p.m.
Level: Advanced
Hours: 27 Cost: $225

WL3
LOW COST BLANKING SYSTEM
April 21, 1985 2 p.m.–5 p.m.
Level: Basic
Hours: 3 Cost: $75

WL4
LOST WAX CASTING AND MOLD CUTTING
April 22 & 23, 1985 9 a.m.–3 p.m.
Level: Basic to Intermediate
Hours: 10 Cost: $100

WL5
PRINCIPLES OF ELECTROPLATING
April 22, 1985 8 a.m.–Noon
Level: Basic
Hours: 4 Cost: $50

WL6
COLORING REFRACTORY METALS
April 22, 1985 2 p.m.–5 p.m.
Level: Basic
Hours: 3 Cost: $75

WL7
AN OVERVIEW OF JEWELRY MANUFACTURING TECHNIQUES
April 21, 1985
Starting every 15 minutes from 2 p.m.–4p.m. Lasts one hour.
Level: Basic to Intermediate
Hours: 1 Cost: $20

**TECHNICAL INFORMATION EXCHANGES**

CONDUCTED BY PETER GAINSBURY
EL1 April 21, 1985 6 p.m.–9 p.m.
EL2 April 22, 1985 6 p.m.–9 p.m.
Level: Intermediate to Advanced
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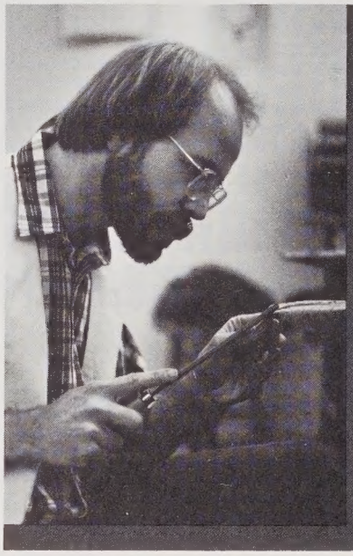

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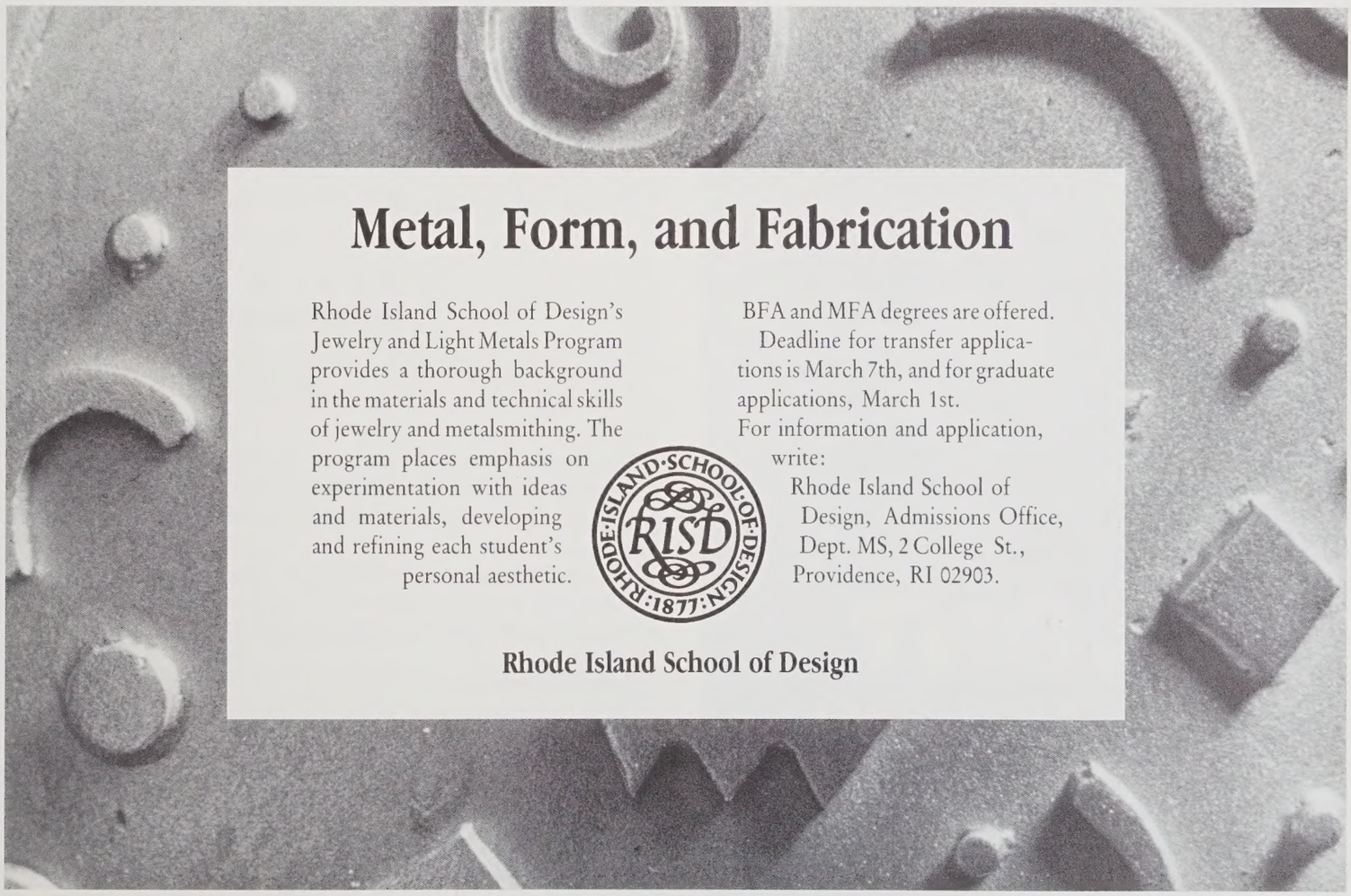


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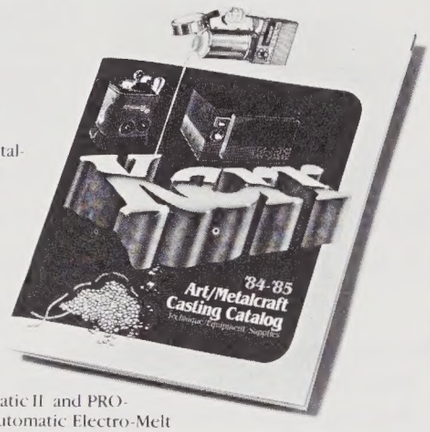


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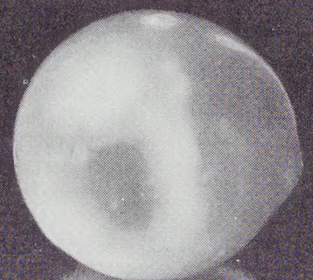

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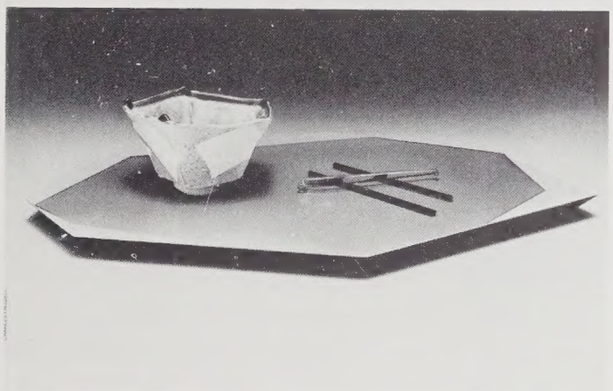

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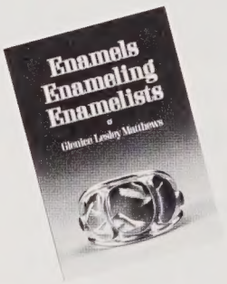


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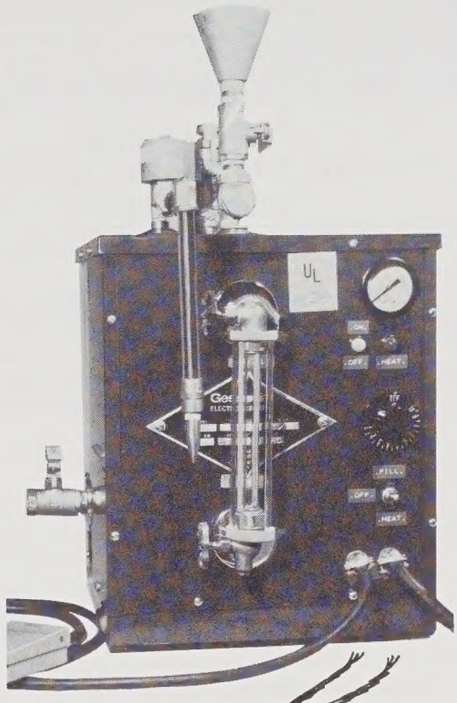

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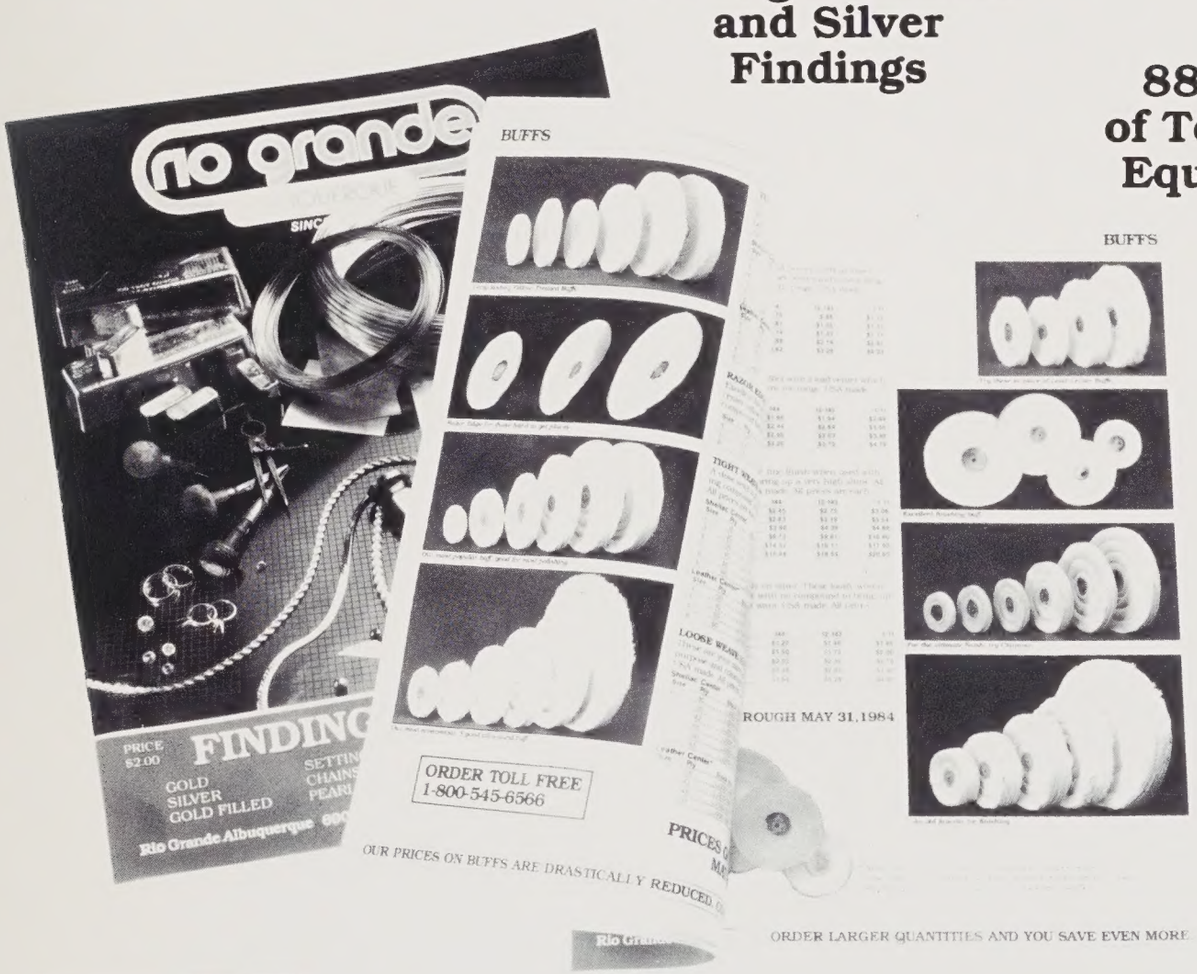


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